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Steam Heating With Pumps

By Emmons Collins, B. S., E. E., M. E.

Pumps are never installed for the purpose of pumping steam. This is self-evident when it is remembered that steam is wanted in the radiators and not at the pump located in the boiler-room. This point was emphasized in a recent article of "Domestic Engineering" quoted as follows: "No mechanical engineer would attempt to secure a greater flow of steam through an open exhaust-line by hooking a pump on its open end."

Pumps are used in steam-heating work either for pumping air, or for pumping water of condensation, or both water and air. Elimination of air is the greatest factor towards perfection in the operation of a steam-heating plant, and pumps are frequently used for this purpose to good advantage. Pumps for pumping water of condensation are required when some of the radiation is below the water-line of the boiler or when the pressure in the returns is not sufficient to return the water by gravity, even when all the radiation is above the water-line. Pumps are also used for pumping at the same time air and water, even in cases where the water would return by gravity.

The current unsolved problem of the heating engineer is: "What is the best device for preventing steam passing through the radiators to the pump?"

Three methods are used:

First—Place thermostatic valves or traps between the radiators and the pump.

Second—Place float valves or traps thus.

Third—Place "restricted-opening" valves as above.

The first and second are to permit air or water (or both) to pass to the pipes leading to the pump, but to prevent the passage of steam.

The third method assumes that by having a restricted opening of just about the proper area for the air or water (or both) accumulating to pass, not much steam will pass and what little steam does pass will be condensed before the pump is reached.

Many firms issue literature advocating the use of pumps on all steam-heating plants regardless of whether the water of condensation would return to the boiler by gravity, the object being the sale of their particular valve or trap and other specialties.

On the other hand, the current text-books, by financially unbiased engineers, give little space to the so-called pumping system of steam-heating, but advocate returning the condensation to the boiler by gravity as a general proposition.

If a heating-plant is air-tight and air is prevented from returning to the system when the boiler-pressure falls below zero, it is properly called a "vacuum system," for the reason that the water will continue to boil and heat the radiators because water boils at a lower temperature when in a partial vacuum. Pumps are used both with vacuum (closed) systems and open systems. Vacuum systems may or may not have pumps.

THE HEATING AND VENTILATING CONVENTION AT NEW YORK CITY.

The recent convention of the American Society of Heating and Ventilating Engineers at New York City has provided in this issue a most gratifying report of good work accomplished and greater achievements yet to come.

We commend to our readers a careful study of the ventilation problems discussed. How far their ultimate solution will modify present heating practice cannot be estimated but that the modification will be extensive in its influence on apparatus and construction is predicted by many. The report of the convention's work is a valuable contribution to our scientific records.

The progress of the society is due to the increasing realization by the members that interchange of ideas and experiences is absolutely necessary and that one must give out knowledge in order to receive it.

The 18th Annual Meeting of the American Society of Heating and Ventilating Engineers

Held at New York City, January 23-25, 1912

The American Society of Heating and Ventilating Engineers has achieved a world-wide reputation for its excellent work in the past. It has, however, at its recent meeting in New York City, gained additional triumphs. The society seems to have received a tremendous accession of vitality, which resulted in the manifestation of greater interest in discussion, a full attendance at every session, and a spirit of good-fellowship and splendid confidence, which are bound to affect favorably all the society's work during the coming year.

The meetings were held on January 23d, 24th and 25th, in the Engineering Societies' building, 29 West 39th St., New York City, in the usual hall on the fifth floor. The efficiency of the secretary, W. W. Macon, was clearly

President Reginald Pelham Bolton.

manifested by the clockwork precision of all arrangements. A pleasing change was the registration of all arrivals on the main floor. This did away with a good deal of unnecessary confusion in the convention-hall.

The first session was called to order on Tuesday afternoon, January 23d, by Pres. Reginald Pelham Bolton, who presented hearty greetings to those present, and invited participation in the discussions by members and non-members, in order that the subjects considered might receive the most thorough consideration.

The report of the secretary, W. W. Macon, was then rendered. The election of the following new members was announced:

P. L. Davis, 1200 Michigan Ave., Chicago; Edward Ehshley, jr., 527 Fifth Ave., New York; Wallace F. Goodnow, 104 West 42d St., New York; H. M. Hart, 328 South Sherman St., Chicago; Richard B. Hunt, 12 E. 42d St., New York; R. B. Mackinnon, Pease Foundry Co., Ltd., Toronto, Ont.; Wm. J. Olvany, 177 Christopher St., New York; O. M. Row, Irlam, Manchester, England; E. J. Treat, 119 W. 71st St., New York.

Associate Members.

Charles J. Jackson, 300 W. Lake St., Chicago; H. B. McLelland, 300 Lake St., Chicago; Frederick W. Smith, Shirley, Ind.

Junior Members.

George G. Schmidt, 132 Nassau St., New York; Oliver E. Willis, 1123 Broadway, New York.

Mr. Macon reported the consummation of the society's desire in the securing of official headquarters on the eighth floor of the Engineering Societies' building. The special office has already proved to be a paying investment, by the additional facilities provided for carrying on aggressive work to enlarge the membership of the society and secure special contributions to its transactions. Mr. Macon also stated that a new departure would be made concerning the papers presented at the meeting. All these papers would be submitted to the members by mail with request for discussion thereon. This will prove particularly advantageous with respect to the papers received too late for distribution before the meeting. After such discussions are received, the author of the paper will then be given his prerogative of reply before the information offered is sent to the printers. The financial report showed a healthy balance in the treasury.

Report of the Board of Governors.

The Board of Governors gave a complete report of all the important events connected with the society's activities during the year 1911. They emphasized the advantages referred to by the secretary in the society's becoming one of the associated engineering societies, with headquarters in the Engineering Societies' building. By this move the American Society of Heating and Ventilating Engineers is assisting to maintain and enhance the dignity of the engineering profession as an influential division of human endeavor, while increased interest has been taken by heating and ventilating engineers in the work of the society, as shown by a gain of nearly 11 per cent in membership. Furthermore, the membership of the society has shown increased interest in the society's work.

The Board of Governors is pleased to record the organization of a New York Chapter on October 24th. A careful consideration of the finances of the society was then given, with special reference to the fact that the per capita expenditure was greater than the membership dues, and the favorable balances shown are maintained by initiation-fees, as a result of the securing of new members. With the growth of the society's members, however, the per capita expenditure will decrease and it is to be hoped that appropriations for special committee investigations can be made in an amount commensurate with the importance of the work to be done.

The Board of Governors held seven meetings during the year. The society lost by death two members, James R. Wade and Past-President James Mackay. Special tribute was paid to Mr. Mackay, and the board recommended the preparation of a suitable testimonial of his

worth, esteem and affection, to be placed on the society's records and to be sent to his family, suitably engrossed. In conclusion, the board reported the volume of transactions of 1910 as being practically ready for issuance, and the transactions for 1911 as very nearly ready. Both will be issued before the summer-meeting.

The Report of the Committee of Compulsory Legislation was next considered. The chairman of the committee, Prof. James D. Hoffman, telegraphed regrets at his inability to attend, and reported progress of the committee working on the preparation of a universally applicable ventilation bill, which he hoped to have in readiness for presentation at the summer meeting.

The Committee on Standards

through its chairman, J. J. Blackmore, reported progress, the special line of the committee's activities being the consideration of a standard of heating boilers.

James A. Donnelly, chairman of

The Committee on Tests,

made an interesting report of work done by that committee, the study of the advantages derived by the removal of air from the interior of steam-radiators. This work was divided into three parts—first, ascertaining the efficiency of a steam-radiator with complete air-removal; second, the comparative efficiency with varying air-removal; third, the percentage of air-removal obtained in ordinary practice. At this session Mr. Donnelly confined himself to excerpting the report, a full presentation of it being reserved for the Wednesday evening session, so as to secure the advantage of lantern slides to illustrate the specific points of the committee's work to which he desired to call attention.

H. W. Whitten, reporting as chairman of

The Committee on Air-Leakage,

stated that the committee was making progress in the study of air-leakage and ventilation of closed rooms.

The Report of the Illinois Chapter

was then synopsized by W. W. Macon, the secretary. This was very thorough, outlining the splendid work that the Illinois Chapter has done the past year. Secretary W. L. Bronaugh is to be congratulated on the conciseness and thoroughness of his presentation. The entire substance of this report has been published in "Domestic Engineering" month by month, so that reproduction will prove to be unnecessary. The report was listened to with attention, and many favorable comments were expressed of the aggressiveness of the Illinois Chapter.

Report of the New York Chapter.

This report recorded the initial steps taken by a number of the New York members of the American Society of Heating and Ventilating Engineers for the formation of a chapter to be known as the New York Chapter of that society. The first meeting took place on October 10th, and the chapter was formed, with yearly dues of $5 for members and associates, and $3 for junior members. W. M. Mackay was temporary chairman and Joseph Graham temporary secretary. Committees were appointed on by-laws and nominations.

On October 24th a meeting was held at which constitution and by-laws were adopted and officers elected as follows: President, W. M. Mackay; vice-president, J. A. Donnelly; secretary, Joseph Graham; treasurer, Arthur Ritter; board of governors, F. P. Chapman, H. T. Gates and F. K. Chew. The balance of the report quoted the account of the subsequent monthly meetings, held on November 14th, December 12th and January 9th. The New York Chapter at these meetings has been exceedingly active in consideration of ventilation of moving-picture-show places. A committee has been appointed to carry on aggressive work in this regard, consisting of F. T. Chapman, W. W. Macon and Thos. Barwick. The New York Chapter now has 58 members, 2 honorary, 3 associate and one junior member, making a total membership of 64. The report was enthusiastically received and adopted.

The Committee on Heating Garantees,

consisting of Wm. M. Mackay, Frank C. Goff, Thos. Morrin, C. E. Pearce and John B. Small, presented a most excellent report on the heating garantee question, which was listened to with interest and evidently met with the approval of the members of the society. Special attention was devoted to two divisions of the subject—who should give garantees, and what such garantees should cover.

Secretary W. W. Macon.

The recommendations of the committee were that the designer of an apparatus should be considered responsible for the result to be obtained by its use, provided that it was installed and operated only as designed and intended. The contractor should only be held responsible for the installation of the apparatus in the time agreed and with material specified in exact conformity with the design and specification, and such materials and labor as he may furnish in placing the apparatus, and any garantee which the contractor may be called upon to give, covering the installation, completion and materials and labor furnished, should not extend for a longer period than one year from the time of completion and permanent operation of the apparatus.

This conclusion was reached as a result of voluminous and extensive correspondence with a number of prominent heating engineers throughout the country. Several of the letters received during the preparation of this report were presented, and they support the recommendations of the committee. The entire trend of these letters was that the heating engineer, in order to sustain the dignity of his position, should be eager to assume all the responsibilities that could possibly accrue to the apparatus or system that he designs and installs. The rewards of such assumption of responsibility would be the greater confidence of his clients and the probability of securing remuneration for his services proportionate to the responsibility assumed, and ability to control in some measure the efficient operation of the apparatus by his power to lay down and secure obedience to their laws of operation.

President Bolton then appointed as tellers Arthur Ritter, Herbert W. Whitten and George O'Hanlon to count the ballots for the election of officers.

Wm. Kent, chairman of

The Committee on the Revision of the Constitution, then presented his report, offering certain important changes, among these changing the title of the Board of Governors to Board of Council, and making the office of the secretary an appointment instead of an election.

S. A. Jellett offered an additional section to be embodied in the proposed constitution, one which is designed to give the membership of the society power to instruct its officers on important matters. There was some preliminary skirmishing in the discussion, the completion of which was finally reserved for Thursday. There seemed to be a decided objection on the part of many members to changing the present method of securing the society's secretary. Among those participating in this objecting discussion were J. W. H. Myrick and H. J. Barron. Mr. Barron moved that the report be received and proceed under the usual routine of the society.

President Bolton then read his address, entitled

"The Use and Abuse of Fuel."

President Bolton outlined the conditions which have contributed to make the fuel problem one of the most important ones for consideration by those who dwell in northern climes. The rapid exhaustion of anthracite deposits is forcing the power-producer and heating engineer to consider the use of bituminous coal in greater quantities. The line of development by heating engineers will therefore undoubtedly be in the direction of firing apparatus to ensure a more perfect combustion of soft coal. Mr. Bolton considered that the alternative sources of present and future fuel for the northern and eastern states will probably lie in the vast peat and lignite deposits of the East and the South. He also stated that the development of the gas-engine will contribute directly to the effective utilization of such materials. President Bolton then referred to the various wastages of industries or products, many of which are capable of use for heat-production. He cited in the Northwest millions of tons of straw and cornstalks, and in the South vast quantities of cotton shells and fibers. He gave an interesting presentation of the waste materials of the Borough of Manhattan, which have a heating-value equivalent to 168,000 tons of coal, equivalent to $774,000. With all the accumulated information of past experience, and with all the improvements of the present day, the economics of the combustion of fuel are not widely understood and are little practised. He appealed to every heating engineering to aid in every way the elimination of preventable and useless waste, and the utilization of every opportunity for economical use of a material which plays so important a part in our industrial operations, our business conditions and our domestic comfort.

Heat Exchange Diagram.

N. W. Akimoff, a non-member of the society but a prominent engineer in Philadelphia, then gave before the society a discussion of the "Heat Exchange Diagram" given by F. I. Weiss in connection with the subject of cooling-towers. Mr. Akimoff contended that this diagram, though designed for an entirely different purpose, was so basic in its conception that it can be admirably applied to the solution of various problems of treating air, as far as the humidity and heating control are concerned. Mr. Akimoff, by means of blackboard suggestions, demonstrated the advantages of the diagram for calculation of heat exchange, as for instance the determination as to how air of 90 deg. and 80 per cent humidity can be reduced to 75 deg. and 60 per cent humidity. Mr. Akimoff concluded his discussion by consideration of the common mistakes made in the treatment of the subject of cooling or humidity control. He offered the paper as an assistance not only to the designer of air-washing and air-cooling apparatus, but also to engineers and consulting architects, so that they may be able to see what can be done and how it can be done. A formal vote of thanks was given to Mr. Akimoff for his important paper.

Drying Apparatus,

by H. D. Russell, Washington, D. C., was a discussion of some of the principles underlying the design of drying apparatus in general. The great differences in sensitiveness of materials during drying were pointed out, and the importance of the determination of suitable temperatures and drying-periods was also noted. The author dealt with humidity and moisture, air-supply, and loss of temperature. The paper concluded with a table giving maximum temperatures and in some cases the average drying-period for materials which have come under his observation.

Discussion on this paper was participated in by Prof. Wm. Kent, J. W. H. Myrick, and S. A. Jellett. Mr. Jellett's discussion covered an extremely wide range of facts upon the drying of almost every type of material including soap, linoleum, playing cards, lumber, brick and linen goods. The discussion showed very effectively the intricacies of drying even with materials which apparently resemble each other.

After announcement of various entertainment features provided for members of the society and their ladies, a call was made for adjournment, which was seconded, the members to meet again at 8 o'clock in the evening.

Tuesday Evening Session.

The meeting was called to order at 8:25 p. m. and the tellers through their chairman, H. W. Whitten, announced the following officers for 1912 as the choice of the society's membership.

President, John R. Allen, Ann Arbor, Mich.; first vice-president, John F. Hale, Camden, N. J.; second vice-president, E. F. Capron, Chicago; secretary, W. W. Macon, Brooklyn; treasurer, James A. Donnelly, Brooklyn.

Board of Governors: R. P. Bolton, New York; James D. Hoffman, Lincoln, Neb.; Samuel R. Lewis, Chicago; W. M. Mackay, New York; D. D. Kimball, New York.

These gentlemen were declared elected by President Bolton, who deplored the absence of John R. Allen, his successor, at this time of elevation to his presidency. The society, however, might feel proud of its new president who is at present engaged in establishing a school of engineering in Turkey.

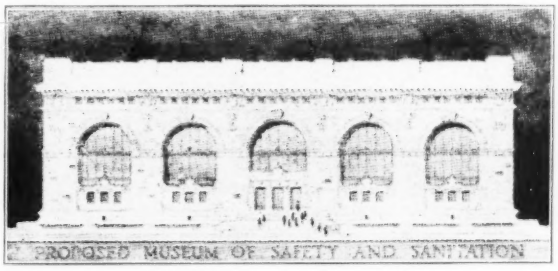
John F. Hale, first vice-president elect, was then installed and he expressed his opinion that if he could have foreseen his present predicament of having to act as president, he would have balked at the shadow of nomination. He had hoped his service as secretary of the Illinois Chapter would have rendered him immune from further official ravages. Since a peaceful survey of others directing the affairs of the society was evidently not his destiny, Mr. Hale declared his appreciation of the honor thrust upon him and his intention to give to the society his best service.

As E. F. Capron, the second vice-president elect, had not yet arrived, Secretary Macon was then introduced and after thanking the members for their confidence in him, announced special features concerning the various entertainment-arrangements.

James A. Donnelly, the treasurer-elect, played a dual role with that mastery of touch for which he is well known. He assumed with excellent grace the position

of watch-dog of the treasury and effectively opened the illustrated lecture-series of the evening by completing his report as chairman of the test-committee with the aid of lantern-slides. He conclusively demonstrated the importance of the committee's work in ascertaining the greater efficiency of radiators in proportion to the removal of air from them.

Dr. Wm. H. Tolman, director of the American Museum of Safety, then performed a descriptive Marathon which delighted everybody. Scores of splendidly-colored slides were thrown on the screen, illustrating the means employed to prevent accidents, and by brief, pointed sentences Dr. Tolman sketched vividly the salient points of the devices and apparatus shown. Many tables were used to demonstrate the economic advantages of accident prevention and regulation in matters of diet and drinking. Remarkable diagrams devoted to showing the commercial losses through chronic and intermittent alcoholism were also given. Dr. Tolman said that there are 16 museums of safety in the world, 14 of which are trans-atlantic. Illustrations of some of the most important were given.



The Proposed Museum of Safety and Sanitation.

The doctor concluded his lecture by showing the picture of a splendid building which the society is hoping to erect. It is to be known as a "Museum of Safety and Sanitation." In such a building Dr. Tolman offered the American Society of Heating and Ventilating Engineers space for the exhibit of special sanitary devices, and he trusted that the society would exert its influence in any movement which had the erection of such a museum or series of museums for its object. A hearty vote of thanks was accorded Dr. Tolman.

Pres. R. P. Bolton then appeared before the audience in the character of a lecturer. "What's he going to talk about?" asked a lady behind me. "Oh," said her male consort, "when Bolton has nothing else to do, he goes round in overalls with a shovel on his shoulder digging up half New York in order to unearth ancient heating apparatus and evidences of the prehistoric Indians' acquaintance with the advantages of heat-radiation and cave-ventilation." This seemed like a joke, but after President Bolton had been speaking five or ten minutes, he placed some of his splendid photographs of Indian fire-places and ancient New York dwellings on the screen, and considerable credence was then given to the gentleman's information. President Bolton surpassed himself and revealed a wonderful fund of humor, which added considerably to the charm of the lecture. His method of presentation of the development of a great city was carefully thought out. Old prints of different parts of New York were immediately followed by photographs of the same streets and shoreline as seen today, and the lecturer's intimate knowledge of every nook and corner, residence and office-building, gave satisfaction to his hearers. The lecture was accorded hearty applause at the conclusion of the evening's entertainment.

H. W. Whitten then gave a call for an immediate meeting of the members of the society to consider the immediate organization of a Massachusetts Chapter. Many of the members enthusiastically responded to his call at the adjournment of the meeting, which was announced immediately after.

Wednesday Afternoon Session.

President Bolton called the meeting to order at 2 p. m. and announced that according to the program the entire session would be devoted to a consideration of ventilation. The first paper presented to the members was by Konrad Meier, New York City, on

Dust in Relation to Heating.

Mr. Meier stated that though it is a popular notion that steam and hot-water systems give a different sort of heat, engineers would define this more correctly by stating that various methods of heating will produce different air-conditions. Modern heating apparatus is often compared unfavorably with old-fashioned devices, being accused of not producing ventilation. All kinds of instances are offered in support of the various theories advanced, but none of the evidences can be considered as proof of the faultiness of the heating apparatus. The question at issue is whether the quality of the room-air is altered in any material way by the process of heating. Changes in temperature and relative humidity cannot account for this, since in nature they do not affect the sweetness of the air within a very wide range of winter and summer conditions.

Mr. Meier than considered the causes of vitiation and the effects of vitiation by heating. He claimed that dust, specially when of an organic nature, will decompose on heating surfaces at a temperature of about 160 deg. F. and upwards. The conclusion was reached that if heating were accomplished by clean surfaces and without causing air-circulation, decomposition would not take place. The nature of dust was carefully set forth, and its well-established character as the principal carrier of bacteria which attack our respiratory organs, was noted. An interesting statement made by the author was that all forms of heating for domestic comfort depend more or less on the utilization of air as a heat-carrier, but the more that radiant heat is utilized by the heating apparatus, the less we depend on air-circulation. The feeling of comfort would be created almost entirely by heat-rays, if well distributed, with the temperature much below the customary 70 deg. F. We need only recall a clear, sunny, still day in the winter, especially in a dry country, where cold does not seem to exist until the sun sets.

The author advanced an opinion that vitiation of air by heating may not be a serious matter for the healthy, but is undoubtedly a distinct source of danger to a great number of people, and a study of the means of remedying the situation should be undertaken.

Finally, means of preventing vitiation by heating were considered. Summing up these, the author recommended the use of well-distributed heating surfaces, easily accessible and cleaned, with temperature not exceeding 180 deg. F. at any time. Air-supply should be filtered where necessary, and to produce most agreeable thermal conditions, Mr. Meier said that it seemed desirable to favor the application of radiant heat, which warms the surroundings and occupants and produces comfort at lower air-temperatures. Ventilation should be treated as a separate problem, the ventilating apparatus being made self-cleaning throughout its extent.

Report of Committee on Ventilating and Heating School-Rooms.

Frank Irving Cooper, chairman of the Committee on Ventilating and Heating School-Rooms, then presented the report of that committee. He referred to the electrifying effects of the speech made by Dr. Luther Halsey Gulick at the previous convention. A consideration was given to the present opinions as to the essentials of heating and especially ventilation, and the statement of the association through its various committees as to the impossibility of securing rigid standards of heating and ventilation, was confirmed.

The committee was pleased to report that advantageous co-operation was being secured by association with a similar committee appointed by the American School Hygiene Association. A standard form of test in all school buildings where right conditions prevail, has been drawn up, and such tests are now being made in one of the school buildings in the city of Boston. Buildings of the most suitable type for such tests are those which are of the letter-H shape, and in which the two ends or halves are served with separate apparatus. Under such conditions the tests will allow one-half of the building to be operated as usual, while the other will be supplied with artificial humidification, changes of temperature, etc. The work of the committee so far has been most valuable in clearing away preliminary difficulties. With a course of procedure now clearly outlined, it remains but to secure suitable experimental places of this kind and the necessary appropriation for the carrying out of regular observations and their recording by competent persons. The opinion of the committee was that the officials of the school teachers, janitors, pupils, should be kept ignorant of the ventilation-tests, and that the different conditions obtaining should be further observed through the records of the pupils' standing in the current year, compared with the last. Attached to the report were various addenda, the chief of which was Addenda C, which outlined the conditions under which the test should be made, a test to find the effects of temperature on school-children, and a test to find the effect of fresh air on school-children. The report was submitted by the committee, consisting of Frank Irving Cooper, Chas. F. Eveleth, Herbert W. Whitten, D. D. Kimball and C. B. J. Snyder.

Relative Humidity: Its Effect on Comfort and Health, was the subject discussed by J. I. Lyle. The author said that in considering the effect of humidity upon the human body, the following questions immediately present themselves to the student.

Is it absolute or relative humidity that affects our sensibilities?

Is the wet-bulb temperature the controlling factor?

De we need high, moderate or low humidities?

Does change in temperature alter the effect of relative humidity upon the body?

Is a constant humidity desirable throughout the year?

What is the effect of shock to the human system in passing from one condition of temperature and humidity to an atmosphere having different conditions?

Mr. Lyle then quoted many interesting opinions from such noted authorities as Dr. Henry Mitchell Smith, Prof. C. E. A. Winslow, Prof. Theo. Hough, Dr. T. A. Starkey, Prof. S. H. Woodbridge. These quotations all bore upon humidity and temperature standards. The author maintained that the wet-bulb temperature is not the all-important factor in determination of comfort. Several interesting tests in support of his contention were given, and the author states as his conclusions that:

Definite degrees of limitations of humidity seem to be impossible, but the limit would seem to be between 30 and 80 per cent.

Low humidities are detrimental to health, and are uncomfortable unless accompanied by high temperatures.

High humidity in cold weather is objectionable on account of excessive condensation.

In cold weather relative humidity should be between 35 and 45 per cent.

The determination within closer limits of the relative temperature and humidity best suited to the greatest number of persons, is of sufficient importance to require the study and investigation of physicians and scientists.

Chemical Notes on Ventilation.

This was the subject of a paper by Percy Norton Evans, of the Department of Chemistry, Purdue University, Lafayette, Ind. Owing to the limit of time, the paper was read by title. The author dealt with the various opinions of the direct cause of the enervating and injurious effects of poor ventilation on the human system. Errors in these opinions were pointed out. A number of tests to determine the changes in room-atmospheres were given, accompanied by tables showing the composition of fresh and expired air under different dry and wet conditions. The author in his summary stated that it has been shown that under all ordinary conditions of ventilation the products of respiration move upward; that this upward movement, by which the harmful products are removed from the level of respiration, is assisted by a low room-temperature, and by dryness of the air of the room; also, that fresh air has the same density as expired air (saturated with moisture and at body temperature) at 33 deg. C. or 91 deg. F., if the fresh air is saturated with moisture, at 39 deg. C. or 102 deg. F. if perfectly dry, and at temperatures intermediate between these with different degrees of moisture.

The Report of the Chicago Ventilation Commission.

This report should have been presented by S. R. Lewis, president of the Illinois Chapter, but he was prevented from attending the meeting by sickness. It contained in complete detail the account of the work of the Chicago Ventilation Committee, which has been presented throughout the year in "Domestic Engineering" during the course of its progress. Our readers will remember the joint-meeting held by the Illinois Chapter and the Chicago Ventilation Commission at the Chicago Normal School, a full account of which was given in our issue of January 13th.

Ventilation Problems.

D. D. Kimball, in his study of "Ventilation Problems" criticised in some measure the criticisers of ventilation as now practiced. He classified the objectors and stated that it was unfortunate for the cause of ventilation that so many ventilating systems have failed to give entire satisfaction because of the inexperience of the designers; the interference of the owners or architects in the placing or design of the apparatus; the false economy of owners or architects in limiting the capacity of the system, and frequently because of the neglect and lack of skill in operation. Some of the difficulties confronting ventilating engineers in the erection of hospitals and public buildings were then discussed. Mr. Kimball does not believe that the open-air school-room deserves all the credit which is given to it, on the ground that such schools are selected with the best possible exposure to sun, etc.; with a small class and a carefully selected teacher, short lesson-periods, definite rest, sleep and exercise periods, and often special diet. In addition to these, medical attention is given to the children, and nurses look after the children's welfare, visiting their homes and making suggestions for

improvements in conditions there also. Mr. Kimball maintained that the same methods applied to the same class in an efficiently ventilated standard class-room, would bring about equally satisfactory results.

Mr. Kimball then gave consideration to important features of ventilation, such as air-volume, room-temperature, humidity, and movement of air. He suggested that profitable study might be made of the other constituents of air, of which ozone is a most active element and is quite extensively used in the treatment of pneumonia. The heating of the air, variation of temperature, cooling of the air, chemistry of the air, and the relation of ventilation to exercise and work, were also deemed to be worthy of serious study. He congratulated the society on its realization of its opportunity for progress along these lines.

Discussion.

The discussion of these papers was reserved until they had all been presented, so that the remainder of the afternoon could be devoted to it. Many prominent men in the medical and biological field had been invited to attend this special ventilation session, and 17 special authorities on hygienic measures were the honored guests of the society.

Dr. W. Gilman-Thompson, Professor of Medicine at Cornell University, made a whirlwind talk in three minutes, accompanied by half-a-dozen special charts. He said ventilation was considered from two points of view; mechanical and physiological. The physiological side had been much neglected. The chart he used showed conclusively the effects of bad air on the blood-pressure of the individual, these pressures being measured by special recording instruments of great accuracy. He believes that there should be co-operation between the medical authorities and ventilating engineers, in order that the best results should be obtained.

Dr. C. A. E. Winslow, College of Medicine and Biological Laboratories, New York City, discussed humidity and air-supply. Many years had been apparently wasted in theorizing and experimenting upon this subject, but he feels confident that the shouting-stage of ventilation has passed, and that we have come to the doing-stage. He expressed his belief that the society would accomplish much by its manifest desire to co-operate with medical and biological authorities in ascertaining the facts necessary for future progress.

Dr. James H. McCurdy, of the Y. M. C. A. Training School, Springfield, Mass., gave an interesting account of the observations being carried on on a class of 190 men in vigorous exercise under direction for two hours daily. These men are subjected to various temperatures and humidity conditions, and the effects are carefully noted, blood-pressure, heart-rate and temperature receiving special attention.

Dr. C. Ward Crampton, Director of Physical Training at the New York public schools, maintained that New York schools had the best ventilation installations in the country, and that artificial ventilation had come to stay. He believes that the remedy of ventilation evils is to be found with the assistance of the biologist and the physician. He stated that the board of education needed a special medical corps to undertake this investigating work. He requested the engineers present to design a "fool-proof" system of ventilation, which would not be dependent upon janitors for its manipulation and success.

Dr. T. S. Carrington, New York City, of the National Tuberculosis Association, confessed that he knew less about ventilation than he did a year ago. He claimed that many false statements have been made, and new facts are wanted in order to secure a satisfactory line of action.

Dr. Luther Halsey Gulick was then called to speak for a few minutes, although he protested, as he was engaged to do duty at the banquet that evening. He said that he had one criticism to offer, and that was that in all the papers offered there had been no discussion on engineering questions proper, but they had been quoting discredited authorities. He emphasized the necessity of eliminating the consideration of the impalpable things, such as a supposed-to-be life-quality of air, not definable and unobservable, which was supposed to be lost during the heating process. He referred to the many apparent contradictions which confronted the investigator, and to the important assistance the public press might give to the cause of ventilation by placing facts before the public and not theories. There are plenty of facts worth publishing and it is to be deplored that our knowledge is ahead of our practice. He believes that the "Back to nature" cry is a mistaken idea. It seemed to convey the impression that nature could not be improved upon. As a matter of fact, a 40-mile wind and a 60 deg. below-zero temperature are part of nature, and every one wishes to improve on those conditions immediately. In the same way, with a temperature of 115 deg. F. with a high humidity, when it seems to be almost impossible to live, man flies from nature to iced-drinks and cool rooms. In his ability to improve on nature, man has shown himself to be superior to animals.

Mrs. S. S. Wise, connected with the New York City charity organization, in investigative work, threw a bomb-shell into the meeting by denouncing all systems of ventilation in New York schools. She made a strong appeal for help in behalf of the New York children, stating that they endured conditions in school that in their homes would not be tolerated. Later on in the various discussions frequent references were made to this sweeping statement, and the point was raised that she had never had an opportunity to examine any other than the oldest types of schools in New York, equipped with antiquated ventilating-systems.

Dr. Henry Mitchell Smith, Brooklyn, declared himself a humidity-hobbyist. He maintained that it was relative humidity that produced the effects on the system.

Frederick Bass, of the State Board of Engineers of Minnesota, outlined various essential features of ventilation, and insisted on the co-operation of the physiologists and the heating and ventilating engineers as being absolutely necessary to final success.

A. Thurston Owens, New York City, then read a short note on the supposed vitiation of air through gas. This note was intended to show that the air was not so vitiated but that, on the other hand, the gas induced ventilation. After many experiments on the air in closed rooms, the products of combustion were not be found in any greater proportion than where electricity was used for lighting.

J. W. H. Myrick, Boston, closed the afternoon session with one of his characteristic speeches of rapid-fire type, full of bristling points and humorous arguments. His remarks were received with vigorous signs of approval, and the meeting then adjourned.

The Wednesday Evening Banquet.

The gathering and informal reception of the society were held in the Egyptian Room of Murray's, 228 West 42d St., at 6:30 p. m. The banquet commenced sharp at 7:15, under the tutelage of Pres. R. P. Bolton. The emptying of the last demi-tasse was the signal for President Bolton's opening duties. He spoke of the importance of the present gathering of the body of men met together with a series of well-defined purposes for the advance-

ment of the industries in which they are engaged. As president, he hoped to leave behind him a record of something accomplished which was worth while. He paid special tribute to the work of the secretary, W. W. Macon, and to the praiseworthy accomplishment of the Committee on Arrangements, under D. D. Kimball, its indefatigable chairman.

President Bolton then introduced to the meeting Miss Helen Varick Boswell, Chairman of the Industrial and Social Conditions Department of the General Federation of Women's Clubs. President Bolton referred to Miss Boswell as an ardent suffragette, and he advised the members who do not coincide with her belief to beware.

Miss Boswell in rising said that she was aware that she had been damned with faint praise, but confessed her suffragette leanings. She gave several interesting facts concerning the relative mental equipment of men and women, and said that woman's development along the higher national mental activities has been only comparatively recent. She humorously told how, when she was a girl, and her mother reproved her old black mammy for telling stories to her of ghosts and "hahnts," she said: "Mammy, you are putting wrong ideas into the child." Mammy's characteristic reply was: "No, ma'am; I wouldn't put no wrong ideas into Miss Helen's head. I'se so skeered she hear anything dat ain't good for her dat I never tol' her a word of trufe yet."

Woman is being considered by man as having powers of which she had never been suspected. For too many years man had defined woman as an animate being, possessed of abnormal speech, entirely surrounded by dress and longitudinally buttoned up the back. Woman's forcefulness has emancipated her from the restrictions of definitions. There are over 7,000,000 women connected with the industries of the country, and it is the duty of the heating and ventilating engineers to see that these women are properly cared for, so that the rooms in which they work and live shall have comfortable heat and healthful air-conditions. Miss Boswell assured her hearers that in all the work that the society may undertake for such beneficial changes, they could depend upon the support of the women's clubs of America.

President Bolton then told a story of a mule that was short and high, named Aaron, because he had none on his tail. In contradistinction, his master was called Moses. Aaron refused to move one day, whereupon Moses smote him with the heavy end of a 6-foot log, and Aaron awoke from his slumber and passed on his way. This story was intended to introduce Dr. Luther Halsey Gulick, the Moses in the case.

Dr. Gulick stated that he knew President Bolton would sacrifice a friend for a joke and a truth for a slam. He congratulated the heating and ventilating engineers on their aggressive attack of the ventilation problems. It was a part of man in his make-up that he should always be endeavoring to create that which did not exist, and to improve that which existed. He spoke of the human conditions which had made the consideration of heating and ventilating problems a necessity. These great cities, with their so-called points of congestion, the crowded streets, the rows upon rows of houses with their many apartments; he often heard congestion condemned. He would speak if he were asked upon the advantages of congestion. In the most congested places, where so many more people would be found together than had ever been considered possible, under proper conditions by such intensive human co-operation each individual could have at comparatively small cost—light, heat, ventilation and privacy.

He referred to the many different kinds of tests which are being made in all hygienic matters, and urged the need of a gathering together of all data from these different sources, so that studious consideration might be given to their improvement. He gave a history of the attempt made to classify the schools of New York according to their heating and ventilating systems, and stated that twice as many pupils passed examinations successfully in schools properly ventilated as in those which were improperly ventilated, and showed the financial loss of the city through such delay in the child's education and advancement.

Auguste Beaurrienne, of Paris, secretary Association des Ingenieurs de Chauffage et de Ventilation de France, then at the call of the president requested the society's indulgence owing to some diffidence with the American language. He urged solidarity among heating and ventilating engineers the world over. He spoke of the progress being made by German and French associations of a similar character to the society of which he was a guest, and trusted that as the importance of these industries grew, between the French society and the American Society of Heating and Ventilating Engineers there might ever be the same cordial understanding that existed between Washington and Lafayette and Franklin and Rochambeau.

President Bolton called upon Theodore Weinshank for some information concerning his attendance at the convention of the British Institute of Heating and Ventilating Engineers.

Mr. Weinshank told in humorous vein the many bad breaks he made while attending the convention, by insisting on discussing the papers presented. It appeared, he said, that some of these papers were not meant to be discussed at all, dontcherknow. When once they understood, however, that he did not intend to be rude but only American, many privileges were extended to him. His last break was when, after toasting the king, he called for a toast on the Statue of Liberty. They compromised by toasting the American Lady.

John F. Hale and Col. J. W. H. Myrick closed the enjoyable feast by a few well-chosen words.

Thursday Morning.

The meeting was called to order at 10:30 a. m. by President Bolton, and David S. Boyden, of Boston, was called upon to read his paper on

Steam-Heating Large Department-Stores.

This paper described the heating of a large department-store in Boston, and a description of the considerations which determined the character of lighting and heating service was set forth clearly. The department-store had a total store-area of about 640,000 sq. ft., a plan being given showing the arrangement of the buildings and surroundings. Steam is furnished by three 250-h. p. hand-fired boilers. A description of the arrangement of the radiation was given, and a study of the daily load-curve for the steam-heating plant as compared with the electric load-curve, attracted considerable attention. To determine these curves and also the efficiency of the boilers, a two-day test of a most thorough character was made on the heating-plant. The author sets forth the results in the diagram, showing the close relation between the coal burned each month for heating and the average outside temperature, which is quite interesting. The actual coal burned for heating in one of the test-days was 24,000 lb., and the electrical consumption 60,485 lb. of coal. The paper concluded with two small tables giving an itemized cost of heating, with equivalent cost per kilowatt-hour of use of electricity, and the relative cost of steam and

electric service per cubic foot of space and per square foot of floor-area.

Vacuo Hot-Water Heating.

"Vacuo Hot-Water Heating" (by forced circulation) was the subject dealt with by Ira N. Evans, New York City. The object of the author was to show that though hot-water heating by forced circulation has been on the market in various forms for about 80 years, the majority of owners and engineers have but slight conception of its possibilities. A description of such a system in a completed circuit was then given, accompanied by a diagram of the connections of such a hot-water heating system. Careful description of the functions of each part was given, followed by a discussion of the merits of different types of heaters, and a description of the heaters, pumps, expansion-tanks and mains used in the best practice. Special features of operation were then dealt with exhaustively, accompanied with charts, tables, diagrams and plans. The paper was conceded to be one of the most complete presentations of the subject yet placed before the public.

Auxiliaries for Pressure-Systems of Hot-Water Heating.

J. J. Wilson, Philadelphia, contributed to the society a description of the Walter's aero-balance system of hot-water heating. This system consists of an expansion-tank placed alongside of a boiler, and a system of damper and draft control. The expansion-tank rises and falls through a gland-joint in the connection between it and the boiler. In operation an air-pressure is placed upon the entire system by means of a pump, the pressure being regulated by means of an air-gage. When the water becomes heated, it expands into the tank, and increases the weight of the tank, causing it to drop inside the gland-joint. A slight drop, never exceeding a half-inch, is sufficient to operate a fulcrum and lever-arm, which multiplies the drop-distance to operate a draft-door and smoke-pipe check. The relief of excess-pressure reduces the water in the tank, which returns to its normal position by means of a counterweight balance. It is claimed that the system is exceedingly sensitive to temperature changes, and that it effects a reduction of sizes of mains and a distinct fuel-economy.

Steam-Heating from the Receiver of the Compound Engine.

"Steam-Heating from the Receiver of the Compound Engine," was a highly technical paper of some length, accompanied by drawings, presented by Auguste Beaurrienne, secretary of the Association des Ingenieurs de Chaffage et de Ventilation de France. His presentation was carefully listened to, and it is the intention of the society to reproduce it in full in the volume of transactions, accompanied by any discussions which may be brought forth by special correspondence.

Ventilation of a Steam-Laundry.

A. M. Feldman, New York City, then read an interesting paper on the principal features of ventilation of a large steam-laundry in New York City, the system being installed by him. He illustrated his reading by special diagrams and pointed out the advantageous features of the installation.

H. W. Whitten, in discussion, gave an interesting description, accompanied by blackboard drawings, of the testing conditions of the school in Boston mentioned in a previous meeting. The differences in temperatures and humidities shown in the ducts and in the school-rooms were quite interesting.

Frank T. Chapman then read

Suggestive Legislation for the Compulsory Ventilation of Motion-Picture Shows.

He recommended a careful study of the points involved, and also a consideration of the temperatures which should be maintained in summer and winter under the differing conditions of such shows.

Wm. Kent then presented to the meeting the complete report on standards of fittings and flanges, which has been adopted by the National Society of Mechanical Engineers and the National Association of Master Steam and Hot-Water Fitters, and he offered it to the society for its adoption also. Owing to the lateness of the hour, the report was not read, but it was moved that it be adopted and placed on file. The session then adjourned.

Thursday Afternoon.

The following papers were read and discussed, or accepted by title during the afternoon session.

Heat Transmission with Indirect Radiation.

Frank L. Busey, Buffalo, N. Y., devoted his paper on the above subject to a consideration of indirect radiation by a forced-circulation system, the air being forced over indirect heaters of either wrought or cast-iron, containing steam as the heating medium. Tests on a Buffalo standard heater with 5-lb. and 50-lb. steam-pressures were illustrated and described in minute detail and the results noted were compared with the facts presented in the tables on Vento cast-iron heaters. The tests support the theory of convection with forced circulation over indirect heaters, whose laws and constants were established at the December, 1911, meeting of the American Society of Mechanical Engineers in the paper "Air-Conditioning Apparatus" by W. H. Carrier and Frank L. Busey. The tests also appear to establish the fact that there is a true film-resistance to the transmission of heat which varies inversely as the density of the air or gas in the surface film and hence directly as the absolute film-temperature.

Scientific Management for Heating Engineer and Contractor.

Norman A. Hill, Baltimore, Md., made an interesting talk on this subject along-up-to-date accounting lines, which brought out several points of interest and value to the members.

Tests of Vacuum-Cleaning Tools and Exhausters.

The author of the above paper, M. S. Cooley, outlined a series of tests to determine primarily: 1.—The feasibility of using a carpet-cleaning test to determine the merits of a vacuum-cleaning system. 2.—To fix the requirements to be incorporated in a specification, where acceptance of the system was dependent on a satisfactory cleaning test. 3.—To determine what requirements, rather than a cleaning test, would be necessary to obtain a first-class cleaning system.

Three types of renovators were tested on well-used glue-sized brussels carpeting, each test-piece being approximately 7 sq. yd. and containing when received approximately 12 oz. of dirt.

The original dirt having been extracted, an attempt was made with different materials, such as wheat flour, portland cement, molders' sand, wet mud spread and dried, and dry, sharp builders' sand, to obtain a satisfactory substance with which carpets could be artificially soiled for testing purposes. The dry sharp builders' sand, screened through a 50-mesh screen, gave the best results. The best method of use was found to be that of weighing the carpet clean, fastening it down, weighing the sand and working it in with the feet till none could be seen on the surface of the carpet.

The efficiencies of the three renovator types were than noted under varying conditions and the author offered as standard measurements in a cleaning apparatus: Width of cleaning slot, not less than ½ in.; length of renovator not less than 12 in.; diameter of hose 1½ in.; diameter of pipe, not less than 2½ in., save where lifts are used when 2 in. should be used; vacuum control to maintain 6 or 7 in. of vacuum at machine.

Definition of the Unit of Heat.

Reginald Pelham Bolton in a brief note under the above title calls for the abolition of the clumsy title "British Thermal Unit" as a description of the unit of heat. He suggested in its place "Heat unit" with its abbrevation "h. u." He proposed that this matter be taken up by the standing Committee on Standards and that this committee after due examination of authorities make a recommendation for adoption by the society.

Heating a Swimming Pool.

This was a brief but most interesting contribution by C. Teran, describing an efficient installation of a swimming pool in a New Jersey residence. A plan showed arrangement and sectional construction and Mr. Teran carefully described the special features of the heating apparatus.

An interesting discussion on the charge of inefficient ventilation of New York plants was presented by C. J. B. Snyder, Supt. of School Buildings, New York City, on the heating and ventilating problems discussed. He said: "It is to be regretted that the peculiar conditions which exist in the heating and ventilation plant of the schools of this city, have given rise to criticism which, going abroad unexplained, will reflect discredit on the art in which we are interested. There have been many misstatements made during the past few days, and owing to the fact that the matter has been for some time the subject of an official investigation, I had thought to let them pass without comment. Our records here, however, should be made clear, and therefore, without violating official confidence or courtesy, I may state first that my office designs and supervises the installation and repairs of all plants; second, it has not, except during the years of 1896 and 1897, had any control of the operation of the plants whatsoever. It has never had charge of fuel supplies."

D. D. Kimball, of New York City, then offered the following resolution to the society:

Be it Resolved, that this Society petition the Board of Education of New York City that arrangements be made whereby the supervision of janitors and engineers operating ventilating plants, supervision of repairs, supervision of plant-operation, and supervision of fuel-supply, be placed under the control of the department designing such plants. Further, that it is most desirable that a limited sum be appropriated for observers of ventilation-tests to be made in co-operation with the department, the Committee on Ventilation of the American Society of School Hygiene and the Committee on School-Room Ventilation of this Society.

The balance of the session was devoted to a spirited discussion of the changes offered by the Committee on Revision of the Constitution and Bylaws. The entire constitution in its new form will be submitted to the members of the society for letter-ballot, and the result of the balloting, with the changes adopted, will be published in due course. A motion for adjournment was made and the most successful gathering of the society terminated.

The provision for the entertainment of the visiting members, their ladies and guests, was most elaborate. A trip to Chelsea Docks, a visit to the New York Public Library, the American Museum of Natural History, the Metropolitan Museum of Art, Tiffany's, a theater-party, automobile drive and a final treat at the Hippodrome, furnished most pleasant diversion and edification to the varied tastes of all participating in them. The success of the arrangements is due to the splendid work of the following committees appointed by the New York Chapter.

General Committee: D. D. Kimball, Chairman; Thomas Barwick, M. F. Thomas, Conway Kiewitz, E. E. Fox.

Dinner Committee: R. P. Bolton, D. D. Kimball and W. W. Macon.

Meetings and Press: M. F. Thomas, Conway Kiewitz and Frank T. Chapman.

Entertainment: Thos. Barwick and E. E. Fox, with whom W. G. Le Compte was associated.

Ladies' Committee: Mrs. Reginald Pelham Bolton, Mrs. von Rehm, Mrs. William W. Macon, Mrs. Thomas Barwick, Mrs. Frank T. Chapman, Mrs. C. B. J. Snyder, Mrs. Percival H. Seward, Mrs. James A. Donnelly, Mrs. C. E. Pearce, Mrs A. S. Armagnac, Mrs. M. F. Thomas.

List of Members and Guests.

E. K. Munroe, Baltimore; N. W. Akimoff, Philadelphia; H. W. Whitten, New York; Frank K. Chew, New York; Wm. H. McKiever, New York; E. A. Scott, New York; Wm. Hutton, New York; R. J. O'Crowley, New York; Wm. Kent, Montclair, N. J.; F. M. Beakes, New York.

E. J. Febrey, Washington, D. C.; Fred. D. B. Ingalls, Syracuse, N. Y.; Geo. G. Schmidt, New York; Geo. W. Martin, New York; Jas. A. Donnelly, New York; Conway Kiewitz, New York; Homer Addams, New York; Hugh J. Barron, New York; Jas. W. H. Myrick, Boston; Edwin J. Treat, New York; M. von Rehm, New York; Joseph Graham, New York.

S. A. Jellett, Philadelphia; Thos. T. Mohr, Philadelphia; A. Haslett, Philadelphia; Louis Wanner, Philadelphia; T. T. Phillips, Philadelphia; Wiltsie F. Wolfe, Philadelphia; A. A. Cryer, New York; G. A. Darnheim, New York; F. O. Ebeling, New York; Geo. B. English, New York; E. E. Fox, New York.

W. G. Le Compte, East Orange, N. J.; J. R. Shanklin, Charleston, W. Va.; A. S. Armagnac, Upper Montclair, N. J.; P. A. Hoffman, Clifton, N. J.; E. S. Wood, Hyde Park, Mass.; Wm. Ritchie, Jersey City, N. J.; Chas. W. Haensel, Hoboken, N. J.; Frank T. Chapman, Montclair, N. J.

F. A. Wilson, Brooklyn; A. Billshall, Brooklyn; N. P. Anderson, Brooklyn; Arthur Ritter, Brooklyn; Geo. W. Edwards, Brooklyn; F. R. Heals, Brooklyn; C. R. Bradbury, Washington, D. C.; L. Franklin Gardner, Washington, D. C.

August Beaurrienne, Paris, France; Edward D. Bottsford, Poughkeepsie, N. Y.; W. D. Clark, Richmond Hill, N. Y.; Franklyn Cooper, Boston; Bert C. Davis, Kansas City, Mo.; Jas. H. Davis, Chicago; L. L. Driggs, Brooklyn; A. C. Edgar, Philadelphia; J. N. Evans, Brooklyn.

W. H. Tolman, New York; C. B. J. Snyder, New York; J. F. Bradley, St. Louis; Hugh J. Barron, New York; A. M. Feldman, New York; W. M. Mackay, New York; Frank G. Phigley, New York; John A. Darts, New York; J. H. Abercrombie, New York; E. Dean, New York; Frank G. McCann, New York; H. Hole, New York; Herbert E. Collins, New York; M. Bjerregard, New York; Harry Mallory, New York.

Geo. T. Farnham, White Plains, N. Y.; Geo. V. Greey, Amityville, N. Y.; Ed. S. Mobley, Frederick, Md.; W. H. Driscoll, Jersey City, N. J.; Chas. R. Bishop, Lockport, N. Y.; S. C. Bloom, Camden, N. J.; Thos. Barwick, Arlington, N. J.; Mark E. Monash, New York; Howard Newman, New York; Henry G. Issertell, Yonkers, N. Y.

August Kehm, Chicago; Chas. Morrison, Melrose, Mass.; H. de Joannis, Chicago; R. C. Shwoerer, Philadelphia; L. H. Quackenboss, New York; Chas. E. Scott, New York; C. H. Seymour, New York; Geo. W. Ward, New York; M. F. Thomas, New York; F. D. Forgee, New York.

Wm. J. Braemer, Camden, N. J.; John F. Hale, Camden, N. J.; H. A. Ferrell, Camden, N. J.; P. J. Newkumet, Newark, N. J.; G. A. Robertson, Woodhaven, N. Y.; J. M. Stannard, Chicago; D. S. Tallman, Jersey City, N. J.; Harry S. Welsh, Rochester, N. Y.

Henry B. Gombers, New York; Richard Hankin, New York; Jas. A. Harding, New York; R. C. Hargreaves, New York; Arthur A. Kiewitz, New York; Edward A. Krauss, New York; W. W. Macon,, Brooklyn; W. G. McCormick, Brooklyn; Arthur McGonagle, East Orange, N. J.; Edward A. Noble, New York; D. D. Kimball, New York; F. M. Norton, New York; D. C. Polglase, New York; Gilbert G. McDuff, New York; Geo. O'Hanlon, New York.

Jas. W. H. Myrick, Boston; Wm. G. Snow, Boston; J. W. Wattles, Boston; W. T. Smallman, Boston; Richard B. Hunt, Mount Vernon, N. Y.

Albert B. Franklin, Boston; Chas. A. Fuller, Mount Vernon, N. Y.; W. J. Kline, Lockport, N. Y.; Robert Lemmey, Ossin-

ing, N. Y.; P. F. Maginn, Pittsburgh; A. S. Mappett, Philadelphia; F. A. Morrison, Boston; Gustav Requine, New York; Alfred O. Blackman, New York; H. C. Bushnell, New York; F. N. Commer, New York.

The ladies in attendance included Mrs. Frank T. Chapman, Montclair, N. J.; Mrs. M. F. Thomas, New York; Mrs. J. A. Donnelly, Brooklyn; Miss Helen R. Innes, Brooklyn; Mrs. C. R. Bradbury, Washington, D. C.; Mrs. J. R. Shanklin, Charleston, W. Va.; Mrs. A. S. Armagnac, Upper Montclair, N. J.; Mrs. T. Barwick, Arlington, N. J.; Mrs. W. M. Mackay, Newark, N. J.; Miss J. Mackay, Newark, N. J.; Mrs. G. B. England, New York; Mrs. F. Goodnow, New York; Miss L. Hummell, New York; Mrs. W. W. Macon, Brooklyn; Miss E. Bolton, New York.

February 5, 6 and 7, 1912.—Annual convention of the Missouri State Association of Master Plumbers, at Springfield, Mo. The officers of the association are: President, J. P. Cunningham, Kansas City, Mo.; first vice-president, Edward C. C. Reisel, St. Louis; second vice-president, G. A. Wood, Springfield, Mo.; treasurer, Jas. P. Carrol, St. Louis; secretary, C. L. Smith, Kansas City, Mo.

February 13 and 14, 1912.—The 21st annual convention of the Ohio State Association of Master Plumbers, at Canton, O. Headquarters will be at the Courtland Hotel, and the convention sessions will be held in the City Auditorium. The officers of the association are: President, Harry S. Smith, Warren; vice-president, John F. Drees, Cleveland; secretary-treasurer, Eb Ellen, 2057 E. 93rd St., Cleveland.

February 14 and 15, 1912.—The 18th annual convention of the Master Plumbers' Association of the State of Wisconsin, at Oshkosh. The officers of the association are: President, Geo. F. Reeke, Green Bay; vice-president, Louis Sonntag, Sheboygan; secretary, P. H. Ryan, Appleton; treasurer, F. C. Kuetemeyer, Milwaukee.

February 19, 1912.—First annual convention of the Utah State Master Plumbers' Association, at Salt Lake City. The officers are: President, C. J. Higson; vice-president, James McBeth; treasurer, Pomeroy Spencer; secretary, F. W. Jones, 501 Hooper Block, Salt Lake City.

February 20, 1912.—The annual convention of the Minnesota State Association of Master Plumbers, in St. Paul. Sessions will be held in the rooms of the Builders' Exchange. Every master plumber in the state is invited, whether or not he is a member of the local or state organization. The officers of the state association are: President, T. E. King, St. Paul; secretary, F. J. Spriggs, 43 West Fourth St., St. Paul.

February 21 and 22, 1912.—The third annual convention of the Nebraska Master Plumbers' Association at Lincoln. The officers of the association are: President, Frank C. Phillips, Lincoln; vice-president, R. D. Kingsbury, Grand Island; treasurer, F. W. Barclay, Beatrice; secretary, Henry H. Kruger, 2812 Leavenworth St., Omaha.

February 28, 1912.—Winter-meeting of the Central Supply Association, at the Hotel Sherman, Chicago. The officers of the association are: President, Wm. Ivy, St. Louis; first vice-president, P. J. Frey, Minneapolis; second vice-president, C. V. Kellogg, Chicago; treasurer, Edw. F. Niedecken, Milwaukee; secretary, Paul Blatchford, 152 Tribune Bldg., Chicago.

March 12 and 13, 1912.—The 19th annual convention of the Indiana Master Plumbers' Association, at Evansville. The officers are: President, C. H. Maloney, Gary; secretary, John B. Burke, 521 Washington St., Gary.

March 12 and 13, 1912.—The 24th annual convention of the New York State Association of Master Plumbers in Troy, N. Y. The sessions will be held in the Germania Hall and headquarters will be established at the Rensselaer Hotel. The officers of the association are: President, John H. Moran, Albany, N. Y.; vice-president, Frank B. Lasette, New York City; secretary, James H. Doody, Albany, N. Y.; treasurer, Chas. A. Campbell, Watertown, N. Y.

May 7, 8 and 9, 1912.—The seventh annual meeting of the American Society of Inspectors of Plumbing and Sanitary Engineers, in St. Louis, Mo. The officers of the society are: President, Martin Conroy, St. Paul, Minn.; first vice-president, John Hefferman, Houston, Tex.; second vice-president, Lawrence J. Lawler, Pittsburgh, Pa.; secretary and treasurer, Thos. J. Claffy, City Hall, Chicago.

May 13, 14 and 15, 1912.—The annual triple convention of the American Supply and Machinery Manufacturers' Association, the National Supply and Machinery Dealers' Association and the Southern Supply and Machinery Dealers' Association at Norfolk, Va. Headquarters will be established at the Monticello Hotel. F. D. Mitchell, 309 Broadway, New York City, is secretary-treasurer of the American Supply and Machinery Manufacturers' Association.

May 14-17, 1912.—The sixth annual convention of the Master Boiler Makers' Association, at Pittsburgh, Pa. Headquarters will be established at the Fort Pitt Hotel.

June 25, 26 and 27, 1912.—The fourth annual meeting of the National District Heating Association, in Detroit, Mich. The officers of the association are: President, A. D. Spencer, Detroit, Mich.; first vice-president, Warren Partridge, Springfield, Ill.; second vice-president, R. D. de Wolf, Rochester, N. Y.; third vice-president, Cadwallder Evans, jr., Pittsburgh, Pa.; secretary-treasurer, D. L. Gaskill, Greenville, O.

July 16, 17 and 18, 1912.—The 30th annual convention of the National Association of Master Plumbers, in Salt Lake City, Utah. The officers of the association are: President, Alfred C. Eynon, Canton, O.; vice-president, Frank J. Fee, New York City; secretary, Louis E. Deuble, 312 N. Market St., Canton O.; treasurer, William McCoach, Philadelphia.

A MYSTERIOUS AND EVENTFUL CONTEST IN GREEN BAY.

From one of the spectators, not only of the regular sessions of the master plumbers of Green Bay, but also of the very many events that take place after those meetings, the following report has been sent of a happening which can only be understood by those "in the know." It will doubtless, however, serve as a basis for similar reports of similar happenings in after-meeting contests, being a model of its kind.

Editor "Domestic Engineering":—The members of the Master Plumbers' Association of Green Bay are constantly interested in the various subjects published and discussed in "Domestic Engineering." Perhaps what I am going to say to you, will not sound quite so well to at least two, namely—Joe and Ed, who pride themselves on their abilities as bottle pool players.

To explain further, would say that we have our weekly meetings, after which we are obliged by force of habit to meet these sharks and contribute gracefully. The old saying, "It's a long road which has no turn," applies in this case as well. George took the conceit completely out of Ed, by taking five straights during a recess, declared for the purpose of giving the Auditing Committee an opportunity to finish its report. This was really the beginning of their downfall.

Previous to the following meeting, Al took particular pains to profit by being a regular attendant at a state billiard tournament. Nels unfortunately couldn't be at the meeting, owing to important business engagements. The game started with Joe and Ed unusually confident, but it's a shame to tell it. Seven straight games were placed to our credit before the final slaughter ceased. The entire stakes won from this contest will be sufficient to warrant a trip to the national convention, which the winners are now contemplating.

The feature of the game was Charlie's exceptional control, very often making the most difficult shots with his eyes closed. (The latter having been their strong suit in the past.)

Al was unusually clever on banks and round the table shots, and George was there with the goods when it required several fine strokes to finish the game.

I am told (this is not authentic) that Joe went home and licked his hunting dog, and Ed. hasn't had a pleasant look (even to his twins) ever since.

Wife—"Please match this piece of silk for me before you come home."

Husband—"At the counter where the sweet little blonde works? The one with the soulful eyes and——"

Wife—"No. You're too tired to shop for me when your day's work is done, dear. On second thought, I won't bother you."—Detroit News.

The Twentieth Convention of the Illinois Master Plumbers' Association

The 20th annual convention of the Illinois Master Plumbers' Association was held in the Knights of Pythias Hall, Decatur, Ill., on January 24th and 25th. The convention was called to order by President Frank U. Patterson at 10:00 a. m. Invocation was made by Rev. Mr. Austin, of Decatur, after which Hon. Dan Dinneen, mayor of Decatur, welcomed the delegates to the city. Mayor Dinneen expressed his belief that the proper credit had not been given the plumbing trade for its part in sanitary advancement, and he expressed the hope that the convention would be a successful one.

T. E. Downing, president of the Decatur local association, then addressed the convention and assured the delegates that they would find enjoyment in the plans which had been made for their entertainment.

Thomas C. Boyd, of Chicago, responded to the mayor's address of welcome, and referred to the marked advancement in the plumbing business which has taken place during the fifty years he had devoted to that vocation.

Robert Mueller, of the H. Mueller Mfg. Co., invited the delegates to visit his company's factory Wednesday afternoon.

T. E. O'Brien, of the Leader Iron Works, invited the plumbers to make themselves at home at the Decatur Club rooms.

J. J. Wade, of Chicago, read an essay on "The Necessity of a State Bureau on Plumbing in the State of Illinois," recommending that the state association should ask the state legislature to pass a law providing for a plumbers' bureau to cover every place in the state, even to the farms, which are, in the paper, said to be as unsanitary as other places. Mr. Wade emphasized the use of a law of this kind and gave many instances where the law would be a good thing. The state has a law which allows cities of 50,000 or more to provide for city laws regulating plumbing and sanitary conditions.

Daniel O'Connor, of Peoria, commended Mr. Wade's essay as one of the most able papers ever read before the association and moved that the essay be made a part of the minutes of the meeting and a vote of thanks extended to Mr. Wade.

C. H. Maloney, of Gary, Ind., president of the Indiana Master Plumbers' Association, was introduced to the convention and felicitated the delegates on the large attendance.

President F. U. Patterson submitted his annual report in which he referred to the growth and progress of the State Association. He referred to the establishment of a state examining board, for which he recommended an amendment to the state law, and expressed the opinion that it would be an improvement over the present system.

The report was accepted with a vote of thanks.

The president's report endorsed the extension of the present law, as provided by the proposed amendment, to cities of from 1,500 to 5,000, and it stated that the methods provided therein for the enforcement of the plumbing code would be of inestimable value in improving sanitary conditions throughout the state.

Delegates and Guests at the Illinois Master Plumbers' Convention in Decatur, Ill.
Photo and Copyright by International Stereograph Co., Decatur, Ill.

The appointment of the following committees were then announced.

Credential committee: T. F. McQuellon, Peoria; Gill R. Capon, Mattoon; E. C. Wagner, Chicago.

Resolution committee: E. C. Barrett, Joliet; C. A. Dreier, Chicago; J. M. Ward, Rock Island; George Moore, Evanston; T. E. Downing, Decatur.

Memorial committee: E. J. Brownell, Champaign; H. B. McVeigh, Springfield.

Press committee: C. D. Brownell, Champaign: P. M. Munn, Chicago.

Wednesday Afternoon Session.

Directly after the opening of the afternoon session the credential committee made its report, which showed the following delegates in attendance:

Alton: R. P. Kennedy. Atlanta: Ed. Bouillon.

Aurora: A. W. Bevier, W. C. Haviland, L. D. Krumlauf, C. S. Ruddy.
Batavia: M. O. Nelson. Beardstown: W. P. Beatty, H. C. Keil.
Belleville: W. J. Schlegel. Bloomington: Wm. Ross.
Carbondale: A. Andrews. Carlinville: D. E. Serlon.
Champaign: C. D. Brownell, D. Johnson, J. Johnson, E. A. Robinson.
Charleston: J. M. White. Chillicothe: J. C. Hammer. Cissna Park: O. W. Sebrig.
Chicago: W. F. Bahn, F. J. Bohn, E. J. Benning, C. C. Breyer, L. A. Clausen, J. Cepican, F. Dillenburg, C. A. Dreier, Geo. Franklin, Wm. Gawne, jr., Fred Grosch, D. J. Hickey, Wm. Hanrahan, A. C. Hickey, C. J. Herbert, Paul Jacoby, F. N. Kiesgen, J. J. Kieker, Wm. Knauss, Wm. J. Lang, A. Nilson, L. Nelson, F. E. Pearson, Jos. Scheuer, C. J. Stein, E. C. Wagner.
Danville: E. A. Mahorney, E. J. Ryan, L. W. Straw.
Mount Vernon: William A. Liebig.
North Du Page County Association: H. H. Putnam; Elmhurst; Edw. Bradley, Lombard; F. A. Goetz, West Chicago.
North Shore Association: John T. Clifford, North Chicago; John D. Mackay, Winnetka; Geo. S. Moore, Evanston; Robert Saxer, Wilmette.
O'Fallon: A. Ohlendorf. Olney: T. M. Richardson. Pekin: R. H. Ruhaak.
Peoria: John Boyd, T. F. McQuellon, Daniel O'Connor, C. W. O'Neill.
Peru: W. A. Schmoeger. Plainfield: J. R. Jones. Princeton; N. P. Brood, Chas. Greenwood.
Rock Island: A. M. McNeill, C. C. Myers, J. W. Ward.
Rushville: A. C. Rowland. Shelbyville: J. O. Heinz. Silvis: H. J. Schmidt.
South Cook County Association: J. E. Gibson, Chicago Heights; Wm. F. Hildeman, Chicago Heights; E. C. Prouger, Blue Island.

Continuation of Photograph of Delegates and Guests at the Illinois Master Plumbers' Convention.

Decatur: O. W. Dawson, W. F. Delahunty, T. E. Downing.
Elgin: R. N. Bridge, L. T. O'Flaherty, H. L. E. Peterson, M. F. Runge.
Effingham: H. A. Bellchamber. Fairbury: C. B. Day.
Farmer City: Henry L. Williams.
Freeport: Anthony Enzler, C. E. Evans, T. J. Walsh.
Grayville: Lloyd Rotamel. Hoopeston: A. W. Murray.
Jacksonville: E. E. Beastall, Bernard Gause.
Joliet: E. C. Barrett, W. L. Erickson, J. G. Poekner.
Kankakee: J. R. Blatchford, J. J. Martin, G. J. Wohner.
La Grange: M. Decker, G. I. Kelley, Q. A. Parre, W. J. Taylor.
Lincoln: W. E. Bouillon. G. S. McDaniel.
Mattoon: Gill R. Capen. Mendota: T. E. Norton.
Moline: Ed. Vermere. Mommouth: I. M. Eastman, J. N. Herdman.
Monticello: H. P. Harris. Mount Olive: C. J. Bender.
Springfield: Wm. Baker, Harry Heron, L. P. Hopkins, C. Kable, John Riefles.
Streator: J. A. Huggans, Wood Mulford.
Sycamore: C. J. Ohlmacher. Taylorville: H. E. Winslow. Whitehall: W. W. Evans.

President A. C. Eynon, of the National Association, then addressed the convention and expresed appreciation of the reception he had received.

The rest of the session was taken up by reports of the officers and the different committees.

This session was brought to a close earlier in the afternoon than is usually the case in order to give the delegates opportunity to visit the factory of the H. Mueller Manufacturing Co.

Thursday's Sessions.

Thursday was given over to executive sessions in both morning and afternoon. The principal measure, and the one on which the most time and labor was spent, was for the presentation of a bill for the Illinois legislature asking for an act to provide a uniform plumbing code which will deal with the material and quality of plumbing

goods to be used throughout the state and the mode of installation so as to make the work sanitary.

Election of Officers.

The afternoon session closed with the election of officers, which resulted as follows: President, W. J. Hilliard, Elmhurst; first vice-president, C. D. Brownell, Champaign; second vice-president, Bernard Gause, Jacksonville; treasurer, O. W. Dawson, Decatur; delegates to the national convention: John McKay, Winnetka; R. P. Kennedy, Alton; alternates: T. E. Downing, Decatur; Gill R. Capen, Mattoon.

H. B. McVeigh, of Springfield, and O. W. Dawson, of Decatur, were appointed as a committee to purchase a suitable testimonial for the retiring president, Frank U. Patterson, in token of the high regard in which his services to the association are held. A similar committee consisting of Daniel O'Connor, of Peoria, and O. W. Dawson, of Decatur, was appointed to purchase a testimonial for Thomas Cody, the retiring treasurer.

Alfred C. Eynon, Canton, O., president of the National Association of Master Plumbers, and C. H. Maloney, Gary, Ind., president of the Indiana State Association of Master Plumbers, were elected honorary members of the association.

The convention was thereupon adjourned sine die.

The Last Section of Photograph of Delegates and Guests at the Illinois Master Plumbers' Convention.

The Banquet.

The social session of the convention was a banquet held Wednesday evening in the dining room of the St. Nicholas hotel. It began at 8:30 and lasted till midnight. Plates were laid for 260 plumbers and their wives and not a place was vacant. The room presented a most attractive scene. Roses and carnations formed the table decorations. The city was represented by Mayor Dinneen and Commissioners Shade and Ruthrauff. Members of the H. Mueller Mfg. Co. and the Leader Iron Works were also present. The opera house orchestra furnished music for the occasion and the Decatur Quartet rendered several songs which won much applause. The menu was a very elaborate one and the meal was excellent in quality, abundant and well served.

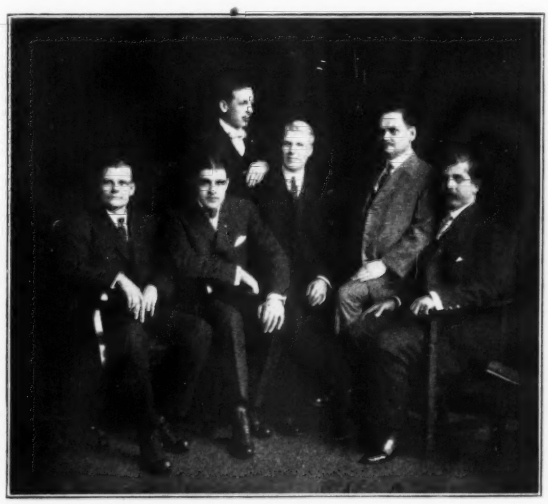
President Patterson was toastmaster and introduced the speakers in well-chosen words. Mayor Dinneen was first called upon, and he said that as he had delivered a five-minute speech that day in welcoming the plumbers to Decatur, he had thereby exceeded his limit by a minute and a half. He was sure that in consideration of this effort he would be excused from further speaking.

Commissioner Shade spoke especially of the responsibility that rests upon the plumbers for looking after the sanitation of householders and expressed the belief that the public is in good hands.

Introduced as a man who knew a good deal about "politics," John R. Fitzgerald declared that until the time came for deciding upon the place of the next annual convention the audience would be little interested in politics. "I would advise you," he said, "in all seriousness to acquaint yourself sufficiently with politics to protect your interests in the legislature on the employers' compensation act, lest the savings of a lifetime be swept away through no fault of your own." He reminded his hearers also of the recent decisions of the supreme court, denying the right of a sub-contractor to take a mechanic's lien in the failure of the contractor to do so. "Decatur is interested in the plumbing trade," he said, "for it is the H. Mueller Manufacturing Company that has done more than anything else to put old Decatur on the map." He referred in complimentary terms also to the Leader Iron Works.

National President Alfred C. Eynon was the next speaker. He said that if any present expected that because he was national president they would hear a great speech from him, they were doomed to disappointment. He was a plain plumber, like the rest of them. But he spoke most entertainingly. He referred to the antiquity of plumbing. In excavating in the ruins of Herculaneum and Pompeii, there was to be found ample evidence that the plumber was much employed in building construction at that time. The plumber as a workman, as a mechanic,

is as old as civilization. But the plumber as a merchant and business man is new. Mr. Eynon described the old-time plumber as he remembered him. He was a fine mechanic and other building mechanics took off their hats to him. He was seldom Amercian born and was usually English, Scotch or Irish, most likely Irish. His place of business was a basement whose floor was littered with every kind of junk imaginable. He was a most companionable fellow and had many cronies who gathered in his shop where they had a good time and the plumber paid for it. The old-time plumber kept no books. Only the rich had plumbing in their houses. When the old-time plumber was called out on a job he did his work well for he was a thorough mechanic. He always stood well with the genius who presided in the kitchen and the pantry and the ice-box doors were open to him. When he went away he left his seal upon her cheek for he knew that he would come again. He kept no account of time or material used on the job but simply hung the owner up for all that he would stand. After awhile something



Board of Directors of Illinois Master Plumbers' Association. From Left to Right They Are: C. D. Brownell, Champaign; Wm. J. Lang, Chicago; Thomas Cody, Peoria; F. U. Patterson, Springfield; W. C. Haviland, Aurora; W. J. Hilliard, Elmhurst.

Photo and Copyright by International Stereograph Co., Decatur, Ill.

happened. The plumber came out of his basement and took a first-floor room where he paid rent. This was the beginning of the plumber as a business man and a merchant. It was coincident with the birth of the master plumbers' association, which is largely responsible for the development of plumbing as a business. The working man's house today has more plumbing and better than the mansion 35 years ago. The least plumbing that could be put in a house of the older time would cost $500, while the modern dwelling may be plumbed for, say, $150. We are getting along, we are making headway. We still have some of the traits of the old plumber but we are getting rid of them as fast as possible.

Adolph Mueller, president of the H. Mueller Mfg. Co., was the next speaker. He said that it was the first time he had seen most of the men present at this convention. The explanation was very simple. His brother, Fred, attended all the conventions and spent all the money. This convention being right at home, which entailed no traveling expenses or hotel bills, it was possible for him to be present.

Mr. Mueller frankly avowed his intention to talk shop. His topic was "The Business of Men," and he spoke of the business side of plumbing and plumbing as a business. A plumber must not be merely a man of skill but must have a scientific knowledge of the business. He must have a knowledge of metals, of expansion, of sanitation, of hydraulics, soil conditions and he must have a general knowledge of mechanics because he must work in connection with other building trades.

He also desired to dispel the notion that plumbers are a wealthy class of business men. He said that in the recent cold spell a plumber had 79 jobs at an average charge of $2.97 a job. Of the total $185.76 was for labor and $49.75 for material. More convincing still was the financial rating of the plumbers in a certain city of 300,000, which showed that only a fraction of one per cent were worth between $50,000 and $100,000.

The plumber must be a merchant, must learn something of the science of cost-keeping and advertising. He must learn to spend more time in developing new business, in educating the public in sanitation and correct methods, than in quarreling with his competitors and figuring the life out of contracts.

He deplored the fact that the plumber is made the butt of cartoonists and the paragrapher's jokes. He advised that when such jokes appear in the newspapers they be clipped out and sent to the president of the organization, who would refer them back to the publishers.

C. H. Maloney, Gary, Ind., was the last speaker of the evening. He pleaded eloquently for improved sanitary laws to protect the health and lives of the people.

The banquet came to an official end in a puff of smoke, for which a flash-light photographer was responsible.

Entertainments.

On Wednesday afternoon the delegates and their ladies were the guests of the H. Mueller Mfg. Co. The large party left the convention hall at 3:15 in six special cars chartered by the Mueller company. Arriving at the plant two hours were spent in an inspection of the works. The delegates were accompanied by Mayor Deneen, the commissioners of the city, members of the Chamber of Commerce and local plumbers. The party was under the guidance of Messrs. Adolph Mueller, Philip Mueller, Robert Mueller and F. B. Mueller. A regular route had been laid out through the factory and at every side there were placards calling attention to the different kinds of goods and the manner in which they were made, and also the Rapidac work, which is a quick-action compression line of goods the company is marketing. The ladies were also much interested in the workings of the big plant, and the visit as a whole proved very instructive to every member of the party. Perhaps the most interesting point, because of its being more spectacular, was the foundry where the 65 brass-molders and helpers were busy taking off a heat. Another feature which proved of interest to the plumbers especially, was the testing room where all Mueller goods are subjected to a 200-lb. hydraulic pressure. There was much interest shown in the gages, where the needle showed that the pressure was 200 lbs. or over all the time during the testing operation. The finishing department with its long lines of buffing wheels was another point of great interest. The journey through the factory ended on the second floor of the main office building, where Mesdames Robert Mueller, Adolph Mueller, Philip Mueller and Frank Cruikshank, and Miss Leda Mueller acted as a reception committee and superintended the serving of frappe, cakes and wafers. Cigars were passed to the gentlemen following the refreshments, and souvenirs in the shape of pencil sharpeners and playing cards was handed to all the guests. Samples of the Rapidac work were demon-

strated by Miss Rose Safar and Miss Ruby Blair, while the advantages of the work were explained by members of the firm. Nearly every plumber in the party gave strict attention to the new work and its mechanical features were frequently complimented.

At 5:30 p. m. all left to board the cars in waiting to carry them back to the St. Nicholas hotel, the headquarters of the convention, and every one was pleased at the pleasant and profitable time spent as guests of the H. Mueller Mfg. Co.

Another feature of the entertainment program was the breakfast given to the visiting ladies by the Leader Iron Works. The wives of the members of this concern gave an excellent luncheon at 11 o'clock Thursday morning. The tables were tastefully decorated with pink candles and smilax. The favors were pink carnations and the elaborate menu and the ribbons were in pale green and white. The luncheon was one of the daintiest affairs that has ever been given in the club rooms and the visiting ladies were delighted.

Visiting Ladies Entertained by the Leader Iron Works at Eleven O'Clock Breakfast, in the Decatur Club.

The ladies' automobile ride on Thursday afternoon was also an enjoyable affair. Nine automobiles were used for this purpose, tl ese belonging to the Decatur plumbers and men interested in the trade. The party was taken over the principal streets of the city, visiting the institutions of importance and the sites of other institutions which will be erected this year.

At the theater party Thursday night the entire parquet in Powers opera house was filled by master plumbers, their wives and visitors of the convention. The large party enjoyed "Louisiana Lou," and even the actors made mention of "the master plumbers," changing the entire "line" of one act for their special benefit. The play was said to be one of the best that has been given this season in Decatur.

During the entire convention Carl Laux, vice-president of the Greeters of America, was on the job every minute looking after the comfort of the delegates at the St. Nicholas hotel.

Mention should also be made of the excellent work done by the local reception and entertainment committees, which were composed as follows: Reception committee: Herbert C. Bush, O. L. Royer, Theodore Brinkoetter, Charles Gouker, Gus Fox, O. W. Dawson, W. E. Adams, Carter Earnshaw, T. E. Downing and George Adams. Entertainment committee: O. W. Dawson, E. L. Harris, O. J. Zimmerman, W. T. Delahunty and W. E. Downing.

Among the Supply Men.

The H. Mueller Mfg. Co., Decatur, Ill., had an attractive display of its well-known lines of plumbers' brass goods, featuring particularly its new Rapidac work. The exhibit was in charge of Fred B. Mueller, E. A. Mann and W. L. Jett.

The Leader Iron Works, Decatur, Ill., had two very attractive and interesting exhibits of its water-supply systems at the St. Nicholas hotel. Shelby Williams and W. V. Pettit were in charge of this exhibit. At the showroom of the Decatur Railway & Light Co's. office the Leader company also had an automatically controlled water system in full operation and this was the center of attraction for a great many of the delegates. This exhibit was close to the convention hall and it was visited by all in attendance at some time during the convention. It was in charge of Sales Manager L. M. O'Neill and President W. A. Shorb. Manager T. E. O'Brien, Auditor C. B. Irish and Manager R. C. Burmood, of the company's Chicago office, helped to entertain the delegates in attendance.

The Fox Furnace Co., Elyria, O., was represented by J. S. Barbey, who exhibited a water-heater.

The Illinois Pump & Brass Co., Peoria, Ill., had an exhibit of its No-Cost soft water-supply system in charge of its manager, C. L. Wilkins.

The Blake Specialty Co., Rock Island, Ill., was represented by John D. Blake, who exhibited the Blake specialties.

The Vaile & Kimes Co., Dayton, O., exhibited its pumps The exhibit was in charge of C. E. Burnett and H. A. Stamper.

The Western Specialty Co., Kansas City, Mo., was represented by J. B. Stewart, who distributed neat combination bill and card cases among the delegates.

The George J. Roberts Co., Dayton, O., had a display of electric and water-driven lifts in charge of John C. Jamieson.

The Bishop-Babcock-Becker Co., Cleveland, O., was

represented by Emmons Collins, manager of its Chicago branch.

The Keystone Die Stock Co., Chicago, exhibited the Delehant die-stock.

L. E. Tremaine, of the Humphrey Co., Kalamazoo, Mich., took care of his company's interests. He presented the ladies with violets.

The Peerless Selling Co., Evansville, Ind., was represented by Harry Snow from Chicago.

ALBANY PLUMBERS HONOR JOHN H. MORAN.

Following its custom since March 6, 1885, the Master Plumbers' Association of Albany, N. Y., has held an annual banquet. In its early days this was a local affair, but seven years ago, John H. Moran, then local president, suggested that the feast be on a greater scale and that it be given in honor of the president of New York State. This was enthusiastically adopted and on Jan. 18, 1906, State President John E. Dugan, Albany, N. Y., was so honored. Since then yearly tribute of affection has been to B. J. O'Donnell, Syracuse; T. A. Hill, New York City; Frank L. Beyer, Buffalo; Isaac J. Brown, New York City; Frederick E. Fladd, Rochester; and this year to State President John H. Moran, Albany, and the father of the celebrative idea.

On January 25th, the Ten Eyck Hotel at Albany was honored by an assemblage of many of the most noted plumbers in New York State. Promptly at 8:30 p. m. the banquet-doors were opened and the happy company, seated at the tables reserved for each group in advance, found an elaborate menu.

From bluepoints to cafe noir, the enjoyment of the feast was continuous and possible voids were rendered non est by liquid offerings from Vino de Pasto to Apollinaris. Excellent selections were given by Holding's Orchestra and George Heim, the popular representative of the United Lead Co., delighted his hearers by his singing ability.

Horace F. Westcott, ex-president of the New York State Association of Master Plumbers, was the toastmaster de luxe.

Thomas F. Nolan, president of the Albany Master Plumbers' Association, extended a cordial welcome to the assemblage. He said this annual gathering had a two-fold significance—the ability to lay aside the turmoils of business in a time when rush work is the rule and the paying of enthusiastic tribute to the State President, John H. Moran. He pointed with pleasure to the presence of the Hon. James B. McEwan, mayor of Albany, and announced that in consideration of his attendance at previous gatherings, the Albany Association had conferred on him honorary membership, a duly-signed certificate of which he handed to Mayor McEwan.

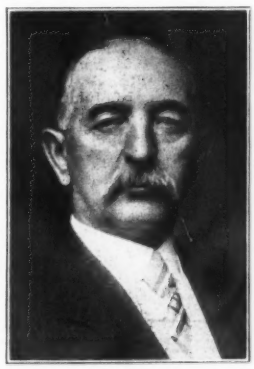
The toastmaster then called on John E. Dugan, ex-president of the New York State Association, to respond to "Our Guests." Mr. Westcott said that Mr. Dugan was leaving the plumbing business and was about to commence his duties in connection with a well-known trade journal.

John E. Dugan was hailed uproariously and in his inimitable graceful style reeled off stories and reminiscences and then called a roll of the chief guests, telling the achievements of each. Special praise was given to Horace B. Westcott, Frank J. Fee, John H. Moran and Frank P. Lasette.

To "Albany (Old and New)" the Hon. James B. McEwan did his duty most efficiently. He thanked the association for his honorary membership and hoped to be with them for years to come.

Replying to "The Empire State," the star of oratory proved to be the Hon. Thomas Carmody, Attorney General of the State of New York. After eulogizing the state itself, he praised the achievements of its master plumbers as guardians of its sanitary conditions. Mr. Carmody protested against the present tendency to change and upset laws which have been recognized as basic in equity and justice. He concluded with a magnificent recitation of the famous poem on the Victories of the Army of Industry.

John H. Moran, the honored plumber of the feast, gave an interesting history of the association, its growth and steady development. He boldly predicted the elevation of Frank J. Fee to the presidency of the National Associa-



State President John H. Moran.

tion. He paid a special testimony to the splendid support given to the association by the trade-press of the country. At the conclusion of his speech, all drank the health of Mr. Moran and one enthusiast expressed the wish "that John J. Moran might live to eat the rooster that crows over his grave."

Frank J. Fee, known as the "boy orator," extended Godspeed to Mr. Moran and stated that at the recent St. Louis meeting held by the national directors, special notice was made of Mr. Moran's efficient discharge of all his associational duties.

Chief among many other interesting speakers were Frank P. Lasette, Frank Fladd, Charles A. Campbell and Jos. B. O'Donnell. From the gallery, many ladies heard their affinities declaim to good advantage and each wife knew for once the where, when and how of the festive occasion and no husband had to dig up a "sitting-up with a sick friend" excuse. Everybody agreed as the dispersal took place that the greatest banquet of the Albany local had passed into the records of the association.

The Committee of Arrangements, so largely responsible for the enjoyment of the meeting, was composed of Frank F. Schimpf, chairman; James H. Doody, secretary; James J. Gorman, Chas. E. Walsh, T. E. Kerwin, Joseph O. Stapf, John E. Dugan, H. C. Whitbeck and Thomas F. Nolan.

Among the supply-men who were the guests of the association were E. T. Curry, representing the United Brass Co., Cleveland; George Heim, of the United Lead Co., New York City; Will Smith, of Haines, Jones & Cad-

bury Co., Philadelphia; W. H. Fifield, Peerless Selling Co., Evansville, Ind., and Teddy Moran, Atlas Brass Mfg. Co., Cleveland.

Members and Guests Present.

John H. Moran, State President; Hon. Thomas Carmody, Attorney General, State of New York; Hon. James B. McEwan, Mayor; Frank J. Fee, National Vice-President; Thomas F. Nolan; Frank F. Schimpf; Horace F. Westcott; John E. Dugan; James H. Doody.

Harkness B. DeVoe, John Wegman, R. S. Doull, Jerry Murphy, P. F. Kenney, Thos F. Lahaney, T. E. Kerwin, A. S. Gaynor.

Frank B. Lasette, Charles Murphy, James H. McManus, T. P. McLaughlin, Wm. J. Bapst, Geo. H. Creasey.

Thos. J. Tuomey, John J. Hannigan, John R. Hopkins, B. F. Donohue, James F. Griffin, J. Jarcho.

B. Jos. O'Donnell, Chas. E. Ames, John R. Sheehan, Frank A. Kehoe, George Easterly, John J. Britt.

Frederick E. Fladd, Louis J. Yauchzi, John L. Fitzgerald, Ed. T. Curry, Wm. S. Dugan, Harry de Joannis.

Frank L. Beyer, Charles A. Campbell, Walter H. Caines, Andrew H. Brown, James M. Heatherton, I. O. Shumay.

Wm. G. McCormick, Leo. M. Doody, James J. Nolan, M. J. Hawkins, Jeremiah Kiely, Ed. J. Renehan, Dr. John H. Callahan.

Charles E. Walsh, Howard N. Fuller, Royal Smith, Ted Moran, Ed. P. Kerwin, Frank Moran.

Henry J. Ryan, George T. Morris, L. J. McNamara, jr., William H. Fitzgerald, James H. Golden, James Rosemond.

Geo. L. Brucker, M. Angelo Cooper, Edgar Kenney, Mr. Fowler, Wm. R. Smith, O. C. Van Decar.

Fred H. Gaylord, A. E. Gray, John Eberle, Thos. J. Dugan, William Brownlow, William Smith.

John H. Moran, jr., J. Howard Johnson, Chas. A. Murphy, John Eagen, Harry B. Persons, Jas. F. Martin, Arthur Sayles.

James J. Gorman, M. D. Riley, Edward T. Doyle, Edward J. Flood, Thos. A. O'Malley, W. H. Fiefield, J. E. Janes.

Albion J. Eckert, W. T. Dorence, P. T. Horton, John B. Waldbillig, N. Lansing De Long, L. F. Bannon.

Hanford C. Whitbeck, DeLancey Palmer, DeLancey Ellis, Frank Wade, Charles Boswell, E. J. Butler.

Joseph O. Stapf, Wm. Robinson, John Thompson, A. S. Like, J. H. Noord, John Girvin.

Jos. P. Maguire, Ed. Ahrens, John A. Long, J. S. Cully, J. J. Falihee, Geo. E. Heim.

Robert Davidson, A. S. Warner, Wm. A. Allen, G. A. Whipple.

BALTIMORE MASTER PLUMBERS' ANNUAL RECEPTION.

This year's annual reception and dance added another success to the long list of enjoyable events pulled off by the hospitable Baltimore members of the Maryland State Association of Master Plumbers. The event proved to be one of the brilliant social affairs of the City of Baltimore. It is an occasion which is now looked forward to by those who are fortunate enough to secure one of the coveted invitations.

Lehman's Hall on the evening of Monday, January 29th, was again the scene of this social gathering, and the wives, daughters and sweethearts of the majority of the association members turned out to show their appreciation of the efforts made to entertain them in the proper style. The hall was most beautifully decorated with greens and palms, and by 10 o'clock there were some 200 or 300 couples on the floor enjoying the terpsichorean art, and it was the wee small hours of the morning before the last strains were played and the pleasure-feasted crowd wended their way homeward. The intermission in the dancing program was enhanced in its enjoyment by the serving of substantial refreshments, the kind pleasing to the ladies as well as the men. Upstairs—in the balcony—the usual treading to and fro was noticed, and the balcony seemed to be a drawing card for popularity.

The occasion was graced by the presence of a number of invited guests, the majority of the members of the association, with their wives, daughters and sweethearts, as well as a delegation from the National Capital headed by ex-National President Walter D. Nolan, and Frederick Quinter, president of the Washington association, John J. Nolan, Samuel Artz and Arthur J. Tholl.

The affair was a thorough success and most capably handled by the committee, of which Charles I. Putts, jr., was chairman.

Moline, Ill.—The Sanitary Plumbing and Heating Co., with a capital stock of $2,000, has been incorporated by Frank P. Styvaert, Ed Vermere and N. M. Styvaert.

PENNSYLVANIA PLUMBERS WILL MEET IN PHILADELPHIA.

The annual meeting of the Pennsylvania Master Plumbers' Association will be held in Philadelphia this year, April 15-16 being the probable dates. Pres. S. S. White, of the firm of Carson & White, of Pittsburgh, who had the office "thrust" upon him at the Johnstown meeting, has labored hard during the past year for the success of the state association, and he has not labored in vain. Annual reports will show that he has put in a busy season.

PITTSBURGH PLUMBERS' VADE-MECUM.

There has just been issued by the Pittsburgh Master Plumbers' Association a morocco-bound book, which is being sold to all in the plumbing fraternity, and which insures a profit to all plumbers who work under the information contained. Over five months' time was spent on this edition by Secretary E. M. Tate, and he declared to "Domestic Engineering" that he was "glad the job was off his hands." The book contains 96 pages. It has cost-list, a complete record of jobbers, and costs of doing a hundred and one jobs, with both labor and materials all worked out. The book also gives information as to what days water-mains are tapped in different parts of Greater Pittsburgh, and a host of other items of information which are of vast benefit to every plumber, whether working in Pittsburgh or elsewhere.

SOUTHERN NOTES.

Henderson, Ky.—Huline's Band is headed by John J. Huline, the well known plumber. Its recent appearance at an Elks' entertainment was much complimented. The Norcutt Plumbing Co. reports quite a lot of small business but large contracts dull at this season.

Owensboro, Ky.—Ed. Kuze is doing a good plumbing business and installing a number of air-pressure tanks. He fitted up last year some 400 bathrooms, and has lately done work on St. Paul's Church, equipping it with four bathrooms. The Owensboro Plumbing & Heating Co. is doing quite a little work about the city.

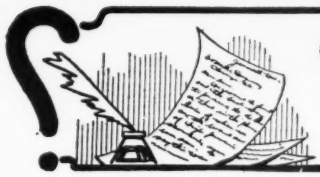
Bowling Green, Ky.—The E. B. Sumpter Plumbing & Heating Co. has been doing considerable work the past season. It has equipped the public school, Y. M. C. A. Mausard Hotel and a good many residences. The firm has installed a good many heating and hot-water systems and water-supply systems at country places near Bowling Green. Walter C. Brashear has been doing the plumbing and heating work on Will May's residence on State street. The South Bend, Ind., Plumbing & Heating Co. is doing the work on the new post-office building.

Nashville, Tenn.—John B. Cain, of Cain & Murray, who is secretary of the Tennessee State Association of Master Plumbers, states that the next meeting will probably be held at Union City, which is in the celebrated Reelfoot Lake district. The David Grewar Co. has this season installed the new heating arrangement of the Tennessee state capitol. This includes boilers, etc. The same firm has been doing the plumbing on the Tennessee State Normal for negroes, and on a number of apartment houses. The T. J. Mooney Co. is doing the plumbing work on the West Tennessee Normal School and the William R. Moore Dry Goods building at Memphis. It has a contract for heating and ventilation by the direct radiation and washed-air system. Last year this firm, which does contracting all over the South, had a successful season, doing the work on the Tulane Hotel, two public school buildings in Nashville; the Birmingham, Ala., Y. M. C. A.; the Middle Tennessee State Normal, and the Y. M. C. A. at Nashville.

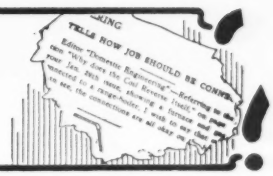
Grand Rapids, Mich.—The Capital Plumbing & Heating Co. has the contract for installing a heating plant in the Salvation Army rescue home.

Greensburg, Pa.—A swimming pool measuring 20 x 60 feet will be a feature of the new Y. M. C. A. building which is to be built at a cost of about $100,000.

Pittsburgh, Pa.—A hot-water heating system will be installed in the School of Applied Sciences, Carnegie Technical Schools, and the contract has just been awarded to the McGinnis Co., 32nd and Smallman streets.



QUESTIONS AND ANSWERS



THAT BOILER-RATING QUESTION.

Editor "Domestic Engineering":—It would seem unnecessary to reply to Mr. Lane, as his resort to an inadequate juggling of facts and fancies shows clearly the weakness of his position. In your issue of January 6th I referred to the experiments of Frank L. Busey, an account of which was published in your issue of October 7, 1911, dealing solely with the question at issue: The most economical rate of combustion. Mr. Lane ignores this and goes back to a series of tests confined to fuel efficiencies only, and gives a garbled extract with evident intention to deceive.

I give salient data omitted by him.

Table of Omitted Data.

Test No.	Boiler Rating.	Firing Period in Hours.	Dry Fuel per hr. per sq. ft. of Grate Surface.	Percentage of Rated Capacity Developed. Per cent.	Plant Efficiency. Per cent.	Cost of Evaporating 1000 lb. of Water from and at 212 Deg. F. Cents.	Load of Radiation in sq. ft.
		1	2	3	4	5	6
247	800	8.69	1.87	14.00	23.02	14.75	112
257	800	4.16	3.83	49.00	37.07	8.85	392
255	800	2.30	7.18	109.50	46.89	7.19	876
256	1075	5.96	2.75	48.37	51.88	6.50	520
343	1075	2.28	7.28	128.60	51.88	6.33	1382

Would Mr. Lane install an 800-ft. round boiler with a 28-in. grate to carry 112 ft. of radiation as shown in test 247, and expect good results?

Compare tests 256 and 343, showing a 2.75-lb. and 7.28-lb. rate of combustion with the same plant efficiency. This apparently disproves his claim, but really proves nothing, as the firing period and load do not coincide with working conditions. Just think of a 1,382-ft. load on a 1,075-ft. boiler with a 2.28-hours' firing-period!

The 800-ft. boiler has a H. S. to grate-ratio of 10.2 to 1, hence any test you could make with it would have no bearing when considering a boiler with proper ratios.

Referring to Mr. Newport's communication, I am glad to learn the truth of the matter, as I believed it to be genuine, for the reason that the results are much more conservative than those shown in an authentic report of the same boiler in the same plant.

With a much lower rate of combustion, this test showed an hourly evaporation of 173 lb. They used .25 as a condensing factor instead of .3, giving a rating of 692 ft. The stack-temperature given was probably wrong, as it would not account for the stack loss of 40 per cent. This boiler has a catalog rating of 575 ft. and 2.4 ft. of grate. The average fitter will not use on it over 400 ft. of radiation.

Let us consider it on a basis of Mr. Lane's favorite average rate of combustion: 8 lb. per sq. ft. of grate per hour. 2.4 x 8 x 24 x 30 = 13,824 lb. hard coal per month, or nearly seven tons, at a fuel expense of $52.50 for a 400-ft. job. This is a very fair type of boiler, and the only crazy part of the matter is the rate of combustion. A 6-lb. maximum and a 3-lb. average would give good results, as it is a 15 to 1 boiler.

I will favor higher rates of combustion when we get boilers that will not show undue stack-loss, but the time-factor must not be overlooked, especially with soft coal. When the time-factor is not involved, I favor higher stack capacity, higher ratios of heating-surface to a grate, and a higher rate of combustion. These three essentials must go together. It is the height of folly to use them singly.

Mr. Lane would have you infer that I am opposed to evaporative tests, when as a matter of fact I favor them, but I am opposed to false reports of the tests. The three essentials above mentioned do govern the evaporative power of a pound of coal, Mr. Lane to the contrary.

Reitschel would feel badly if he knew that Mr. Lane had demolished the results of all his work by a simple movement of his pen.

We have ample evidence of Mr. Lane's way of doing things in the scores of types of boilers made, tested and discarded. It is possible, and we now are conducting experiments, to ascertain the rate of heat-transmission through the variously located surfaces of a boiler at different rates of combustion of different fuels. When we complete these experiments, our motto will not be, "Make, test and swindle the people," but "Test, make and give value received."

The American people have done their share of the testing. It is high time the manufacturers did a little. I know one manufacturer who has made, sold and discarded seven different models or types of square boilers, and the last is no better than the first. This cut-and-try method is not only hard on the consumer, but a mighty poor way of doing business.

What is, is not necesarily right. When conditions are not right, it is the business of heating men to work to better them. Let us determine what constitutes the right condition and then all work to secure it.

Standardize conditions first and then standardize boilers, but for the present it is up to the fitter to judge the condition and use the boiler best suited for the place.

B. O. Iler.

CURE FOR A DEFECTIVE HOT-WATER INSTALLATION.

Editor "Domestic Engineering":—In answer to S. B. M., whose inquiry was printed in the December 23d issue, I would suggest that if I correctly understood his trouble, viz., "No water can be drawn from the hot-water cocks at the different fixtures," the trouble he mentions is undoubtedly due to the fact that the hot-water supply-pipe becomes air-bound at a point at or near the top of the range-boiler. Of course, there is the possibility of the existence of an obstruction in the piping other than air, but considering the small head or hydrostatic pressure of the system, and in view of the fact that piping arranged as shown in sketch by S. B. M. is particularly apt to become air-bound, it is only reasonable to suppose that trouble such as he describes would occur on just such a job as his sketch shows.

Briefly stated, the principle governing the action described is that, as air always tends to rise and seeks to escape, it naturally would accumulate at the highest point, unless the piping is arranged so as to permit its escape. The escape is in this case prevented by reason of the trap in the piping at the top of the boiler, the consequence being that the air accumulates in sufficient quan-

tities to overcome the pressure exerted by the supply, thereby holding back the hot-water and preventing it from flowing at the fixtures. The remedy is obvious; being a tank job, simply insert a tee at the point marked A in accompanying sketch and from it run a pipe upwards, avoiding traps, to a point over the top of the tank and arranged so that a discharge from it, if any, will fall into

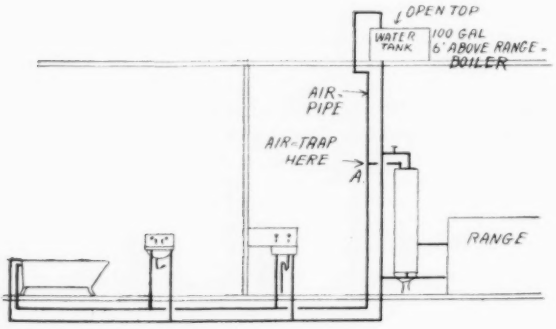


Fig. 1.

the tank, but this pipe must be arranged so that its end cannot dip into the water. This done, there should be no question about the water flowing from the cocks at the fixtures.

If it is desired that the hot-water should flow almost immediately from the cocks at the different fixtures, the job should be arranged on the circulating system. To do this the work could be arranged as shown in Fig. 2, in which the circulating loop is shown arranged on the ceiling of the room in which the fixtures are located, the pitch given to the pipes forming the loop and the connections to the fixtures being made as shown; note that the supplies to the fixtures are connected to the flow-pipe. The work also may be arranged so that the flow-pipe may run across the ceiling, then drop and return

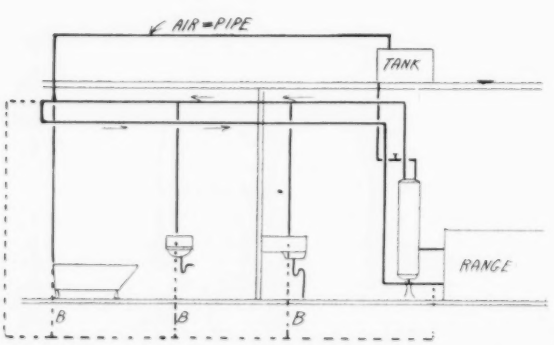


Fig. 2.

under the floor to the return-connection at the bottom of the boiler, the connections to the fixtures being made as shown by the dotted lines. In the opinion of the writer, the first-described circulating job is much to be preferred for best results, as in the case of the connections being taken from the return-pipe less satisfactory service would result, and under certain favorable conditions there is a possibility that a reverse circulation would be obtained, thus entirely defeating the object sought. I would like to see discussed in the columns of "Domestic Engineering" which of the two jobs described, arranged on the circulating system, would give the best results and why.

New York. M. A. W.

NEW ENGLAND ASSOCIATION OF PLUMBING INSPECTORS HOLDS MID-WINTER MEETING.

Forty-two plumbing inspectors, representing almost every state in New England, attended the mid-winter meeting of the New England Association of Plumbing Inspectors, which was held at the Elks' Home, in Boston, on Saturday afternoon, January 27th. The meeting convened at 12:30 and for nearly two hours the members devoted their attention to disposing of the good things outlined on the menu.

After dinner President Oswald J. Collington, of Lawrence, welcomed the visitors and then introduced as the chief speaker of the afternoon the Hon. Edward G. Frothingham, of Haverhill, a member of Governor Foss' executive council. Mr. Frothingham was chairman of the committee on public health of the Massachusetts legislature at the time that the first plumbing laws were enacted, and was largely instrumental in having such laws adopted. He spoke interestingly for half an hour.

A paper was then read by F. W. Tower, of Springfield, Mass., on "Septic Tanks," followed by a general discussion in which nearly all of the members took an active part.

Twelve new members were admitted, representing the cities of Newport and Providence, R. I.; Portland, Me.; Manchester and Keene, N. H.; Hartford, Stamford and Waterbury, Conn., and New Bedford, Malden and Brighton, Mass. Under the constitution the association must have a vice-president from each state represented on the memership roll, and accordingly three new vice-presidents were elected: They were: J. R. Walker, Waterbury, Conn.; C. O. Morton, Portland, Me., and C. O. Seaman, Manchester, N. H.

Under the constitution of the Massachusetts Association of Plumbing Inspectors, the predecessor of the New England Association, two meetings a year are held, a mid-winter meeting in Boston and a mid-summer meeting, with election of officers, in Worcester. It was voted at the meeting Saturday to have the executive committee prepare an amendment to the constitution that would call for the mid-winter meeting and election of officers in Boston in January and a mid-summer meeting at different points in New England, to be decided upon from time to time.

The association now has a membership of about 65, with every state in New England represented and interest constantly growing. By holding meetings at different cities, it is hoped to add to the interest and attract more members. The secretary of the association is Ernest P. Bates, 48 Pynchon St., Springfield, Mass., who will be glad to communicate with any inspectors of plumbing who are interested and to outline to them the objects and benefits of the association.

BROOKLYN MASTER PLUMBERS' ANNUAL ENTERTAINMENT.

The Master Plumbers' Association of Brooklyn had its annual entertainment on January 17th at the Imperial, Fulton street and Red Hook lane. A large number of guests enjoyed a vaudeville program, after which dancing was continued till an early hour. The credit of a most delightful evening is due to the following members of the association who served on the committees:

Floor Committee: Richard L. McChesney, Thomas F. McEnaney, Robert A. Austin, Joseph P. Killian, Nathaniel C. Brien, Harry Voletsky, Michael J. McGrath, William A. Nugent, Frank J. Bryan, Eugene A. Lambert, William S. Hearne, James Johnston, John Gannon, Louis Kayfetz.

Committee of Arrangements: Matthew J. Kennedy, chairman; Michael F. Gleason, William Elerman, Robert E. Dingman, J. Louis Bosch, James Jarcho, Patrick H. Gleason, Joseph Rosenthal, George F. Tracy, Joseph F. Corcoran, James Johnston, Edward Belford, James T. Keenan, Thomas E. O'Brien, Denis J. Donovan, William A. Crane, Frank J. Bryan, Martin J. Hayden, Louis Frisse, Michael J. McGrath, Lewis A. Deiser, jr., Samuel J. Corcoran, John J. Dixon, secretary and treasurer.

Samuel J. Corcoran was floor director, ably assisted by Ignatius P. Byrne and Martin J. Hayden.

Oil City, Pa.—All contracting and journeymen plumbers are now required to pass an examination and take out license, under the provisions of the law of May 14, 1909, which the board of health has recently decided to enforce strictly.

Domestic Engineering "First-Aid-to-the-Injured"

Postal-Card Cartoon—No. XV.

It's Not Too Late Yet.

WHAT'S HOME WITHOUT A PROFIT
LET GEORGE DO IT !
FINE TEMPTER
JOHN, I WANT YOU TO SIGN ONLY ONE NEW YEAR'S RESOLUTION THIS YEAR. YOU CAN KEEP YOUR PIPE AND STAY OUT WITH THE GANG ONCE IN A WHILE BUT — YOU MUST SIGN THIS
I WILL GIVE IT TO ME '
NEW YEAR RESOLUTION I WILL BID AND COLLECT A PROFIT ON EVERY JOB IN 1912. SIGNED
SHUT UP ! IT'S A CRITICAL MOMENT
THINK HE'LL DO IT, TOMMY ?
PA WILL IF HE'S GOT THE SAND
THAT RESOLUTION SOUNDS LIKE MORE PICKINGS FOR ME THIS YEAR
DOMESTIC ENGINEERING
DID YOU SIGN YOURS YET?

This cartoon has proved to be the most popular of all we have used. Many of them have been framed. There have been many calls for a postal-card reproduction of it and now we can fill them. We will be glad to help you to evangelize your territory by sending you a dozen or two for distribution. How many do you want?

INCORPORATION OF THE A. J. DOWDESWELL CO., BROOKLYN, N. Y.

The Albert J. Dowdeswell Co., Brooklyn, N. Y., has been incorporated by A. J. Dowdeswell, C. A. Dowdeswell, and N. J. Dowdeswell with a capital stock of $10,000. The new firm will engage in the manufacture of plumbing specialties.

WILL MAKE VALVES, HYDRANTS AND OTHER SPECIALTIES.

D. E. Sealey, Hampstead, N. Y.; E. D. Every, Walton, N. Y., and C. E. Tyler, Passaic, N. J., have formed the S. E. T. Valve & Hydrant Co., with capital stock amounting $30,000. The new corporation will make valves, hydrants, etc.

THE S. DESCHAUER CO. IS INCORPORATED.

The S. Deschauer Co., 1345 Blue Island Ave., Chicago, has been incorporated by Otto J. Deschauer, Henry D. Cheney and Peter L. Evans, to conduct a plumbing supply business. It is announced that the new firm has a capital of $50,000.

WILL MANUFACTURE BATHS AND LAUNDRY-TUBS.

Baths and laundry-tubs will be made at the new plant of the Euclid Mfg. Co., which has been established at Paden City, W. Va. The capital stock of the company is $20,000 and Pittsburgh people are back of it, although they reside in the local suburban territory. The new company is composed of William D. Hafger, of Crafton, Pa., and Elmer E. George of Ingram, Pa., together with Harry F. Hetzel, of Bellevue, Pa.

WILL CONDUCT A PLUMBING-SUPPLY BUSINESS.

The Mason City Supply Co., Mason City, Ia., has recently been organized by Mason City and Des Moines men, to do a plumbing-supply business. The capital stock is announced as $75,000 and the first officers are: President, Daniel P. Reinking, Des Moines; vice-president, C. A. Parker, Mason City; secretary and manager, A. N. Van Dore, Des Moines. The board of directors is composed of the officers and Floyd E. Johnson and D. H. Fitzpatrick.

CALENDARS FOR THE PLUMBING AND HEATING TRADES.

The Herbert Boiler Co., Root and La Salle streets, Chicago, could not do justice to the merits of its products within the limits of an ordinary calendar, so it decided to send out a hanger, 23x28 in., printed in green and black. It contains a calendar, with detachable page for each month, printed in white on dark blue with legible figures and the usual moon's phases. The remainder of the space is devoted to a presentation of some of the Herbert specialties, with descriptive matter. There are 10 illustrations, including three views of the Herbert smokeless boiler, a sectional view of the downdraft smokeless firebox boiler, three styles of the detachable firebox boiler, a sectional view of the "junior magazine heater," and views of the garbage-burning water-heater. The customer who can look at these illustrations and read the arguments presented—and the type can easily be read at some distance—without a desire to install a Herbert boiler, must be very exacting indeed. The garbage-burning water-heater, and the reasons why it should be installed in the reader's home, seem to us particularly effective at this time when the disposal of garbage is being specially considered by municipal authorities. The last two lines on the hanger are worth quoting: "We do not sell mail-order houses, make plans, or start trade-schools. We sell the legitimate trade, and give them all the information and protection we have at our disposal. We solicit the patronage of every legitimate plumber and steam-heating contractor, and will leave nothing undone to give them prompt shipment and best goods on the American market." If you haven't received your copy of the Herbert hanger yet, tell the company that "Domestic Engineering" told you to ask for it.

The Leighton Supply Co., Fort Dodge, Ia., is sending out to its customers and friends an attractive calendar to remind them every day in the year that the Leighton Co. carries "Everything in Plumbing and Heating Supplies." Each page is adorned with a cut of the new home of the concern at 13th street and First avenue South, and a cheerful appearance is given by printing all the Sundays and holidays in red. The moon's changes are also shown in red, and his countenance is more beaming than usual, the artist having substituted for the customary facial expression one more in keeping with the bright coloring.

PERSONAL MENTION.

Edward R. Lewis, of Troy, N. Y., has joined the salesforce of the Van Arnam Mfg. Co., of Fort Wayne, Ind. He will cover western territory.

A. D. Lanney, who represents the Consolidated Engineering Co. in Kansas City, Mo., visited this company's office in Chicago last week.

C. W. Higgins, assistant secretary of the LaBelle Iron Works, Steubenville, O., who has been in San Francisco in connection with the establishment of the local branch office, has returned East.

E. F. Euphrat, president of the Pacific Porcelain Co., San Francisco, and also interested in the new concern recently organized there, the Pacific Sanitary Mfg. Co., which is to make porcelain-ware, bath-tubs, etc., is now in the East arranging for the latter plant's special equipment. It is expected that the new company will commence work on the plant very soon.

E. A. DOWNER DEAD.

E. A. Downer, a popular representative of the National Tube Co., Pittsburgh, Pa., died at his home in St. Louis, Mo., on Friday, January 26th. Mr. Downer had many friends in the plumbing trade, who will be sorry to hear the intelligence about his demise.

THE PLANT OF THE ELJER CO., CAMERON, W. VA.

The plant of the Eljer Co. is located in the mountains of West Virginia, within a few miles of the junction of the states of Pennsylvania, West Virginia and Ohio. The location is about half-way between New York and Chicago, and a very convenient shipping point for western and southern cities, Cameron being only 90 miles from Pittsburgh.

The principal reason, however, that this plant is located in Cameron, is that at this point is one of the richest natural gas fields in the United States, and gas is unquestionably the ideal fuel for making earthenware, not only because of its cheapness, which is in itself a great advantage, but its ease of control, making an immediate reduction or increase of heat possible in any part of the kiln, and in this way making easy the uniformity of temperature in all parts of the kiln, which is so essential to properly-fired earthenware.

The lay-out of the plant is ideal, having a railroad siding along its entire length so that material can be unloaded from, or loaded into, cars at any department of the factory. The plant is so designed that the raw material is unloaded at one end and gradually carried forward through the slip-room to upper stories by conveyors, thence to biscuit-kilns and biscuit and dipping-rooms, through the glost-kilns, and the finished product out to the shipping

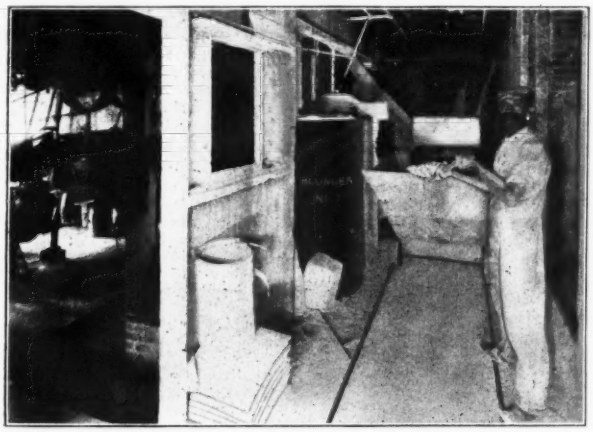


Fig. 1.

platform. This arrangement prevents any unnecessary handling.

The brass-foundry, machine-shop, and polishing and plating departments are entirely separate from the vitreous plant, but a private small-truck rail-line makes the carrying of material from these departments to the assembling-room a simple matter.

In the manufacture of its ware the Eljer Co. uses only the best clays and glaze materials, some being brought from England and others from our own country. These materials are handled by skilled union labor, and the process of making the clay is so thorough and careful that a few illustrations are necessary to appreciate the steps taken to produce this quality of ware. We believe our readers will be interested in these various details, since it cannot fail to be an eye-opener to many of them, as it was to the writer, and we give a few illustrations of some of these various steps that will explain the methods and care necessary.

In the first place, material is unloaded from the car in which it arrives, through one of the doors in the farther end of the plant, along the railroad-siding, each material being placed in a separate bin and unloaded through a separate door.

Fig. 1 shows a man standing in front of the inside of one of these bins, loading clay into a scale-truck, which truck moves along rails, past the various bins. This truck is fitted with scales which automatically indicate when a sufficient amount of each material is loaded. When this truck is filled with the proper proportion of the materials that constitute the body from which this vitreous ware is to be made, the clay is emptied into one of the blungers, the end of which is seen projecting through the partition into the room in Fig. 1 (where the man is seen shoveling). The material remains in these blungers for several hours where it is constantly stirred until thoroughly dissolved in water to about the consistency of cream. From this blunger, the other side of which is shown in Fig. 2 (the large circular tank, against which the ladder is leaning), after being thoroughly dissolved, the liquid clay flows into

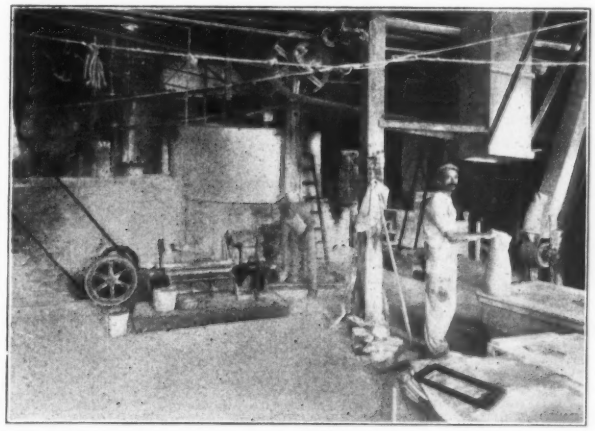


Fig. 2.

the rough agitator. This is the large tank on the left of Fig. 2. This tank is on a lower level, so that liquid clay will flow into it from the blunger. This material is kept stirred in this agitator until required. It then flows through the very fine, double, vibrating screen shown in the lower left corner of Fig. 2. In fact, these screens are so fine that they have 100 and 110 meshes to the inch, and only the material fine enough to pass through them is used. Inasmuch as the heats to which this ware is subjected in the kilns are so great that any particles of iron would be melted in same, staining the ware a dark red, it is necessary to pass the material as it leaves the screen past a number of high-powered magnets, so as to ex-

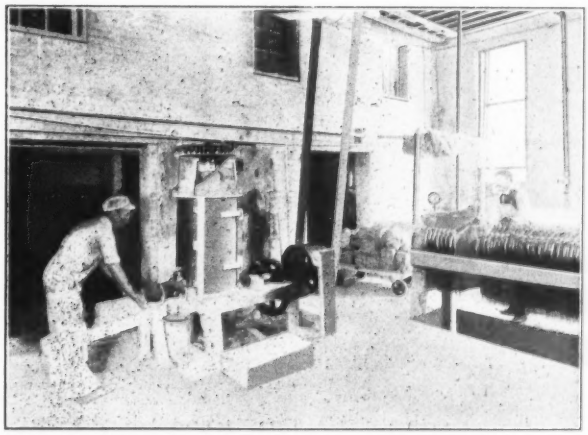


Fig. 3.

tract from the liquid clay any minute iron flakes that may have gotten into same from the machinery or other sources. After the liquid clay passes these magnets, it flows into another large tank under the door, where it is kept in motion until a high-power pump lifts it and forces it in the clay presses shown on the right of Fig. 3. One of these presses is shown open in Fig. 3, with a sheet of canvas over one of the iron discs. These presses are made up from a number of these discs, with a continuous opening through all of the discs connecting same so that the clay can be pumped against double sheets of

canvas which lie between each of these discs, thus forcing the water through the canvas against these corrugated discs and out through openings provided in the press for its escape, leaving only the dense, plastic clay, containing just sufficient moisture for working. In order to extract this water and make the clay the proper density, it is necessary to pump it up for several hours, at a constantly increasing pressure, until it reaches approximately 85 or

Fig. 4.

90 lb. After the clay is of proper consistency, it is removed from the presses, which are shown in Fig. 3, and placed on a small-wheel truck and piled in a cellar to remain for a time. This clay is always better after it stands for a number of weeks, as it has more plasticity and is easier for the workmen to handle.

When the clay comes from the storage-cellar, it is placed in the circular, vertical pug-mill, shown on the left side of Fig. 3. This is a revolving mill containing a number of blades which work this clay until the density is uniform, and all particles of air are excluded. This machine forces a column of clay through the nozzle, the mill being filled as the finished clay is forced out.

In Fig. 3 the man is seen cutting the clay from the nozzle of the pug-mill with a piece of wire, the columns of clay being about two feet long. The clay thus prepared is then ready to send up to the workmen. A conveyor

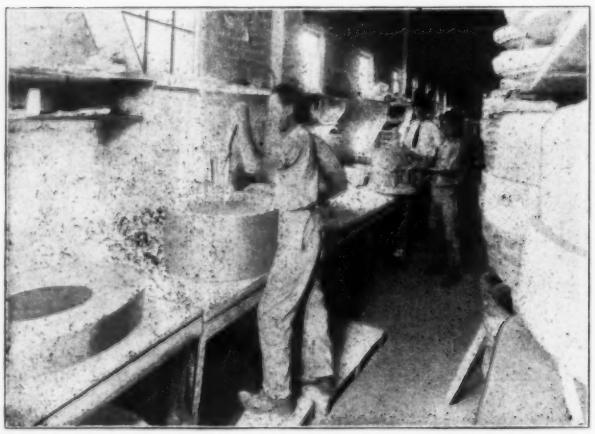


Fig. 6.

will be seen to the extreme right of Fig. 2, with a cylinder of clay loaded on same. The man holds another cylinder of clay ready to load on the next step as the belt turns around. From this clay-room the clay is carried by this conveyor to the workmen in the pressing-shop, views of which are shown in Figs. 4, 5, and 6.

This clay is beaten out into flat discs by the pressers, the size of the disc being determined by the article to be made. One of these discs of clay is shown on a plaster block in the lower left-hand corner of Fig. 5. Properly-shaped plaster molds are filled with sheets of clay, and the surplus clay cut away. The molds containing the wet clay are then allowed to stand about 24 hours, after which the various parts are stuck together. In Fig. 4 will be seen a square tank on the bench. This tank shows three sides and the bottom, the back of the tank

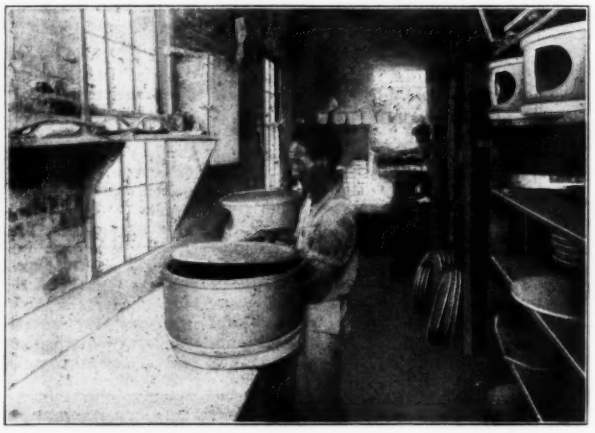


Fig. 5.

not being joined to the fixture as yet. The man farther along in the same view is about to join the foot of a siphon-jet closet to the bowl, the bowl being upside down. Still farther along, a siphon-jet bowl is shown on the bench with the under rim in view. The upper part of this rim is joined to this under rim, thus providing the hollow channel through which the water is supplied. The clay in both of these pieces is still in the plaster

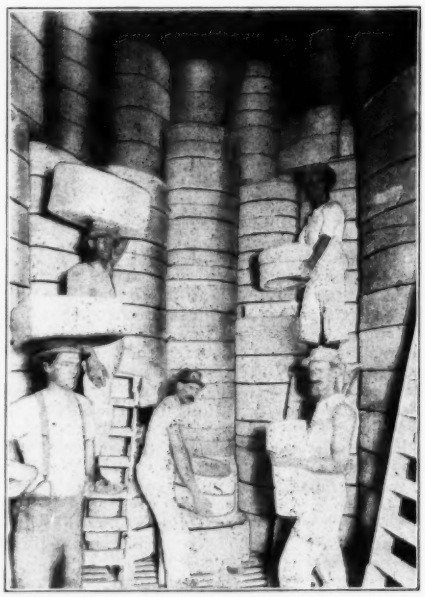


Fig. 7.

molds, and the molds are placed together and then afterwards taken away, and the joint carefully made by union der of clay ready to load on the next step as the belt turns joint must be perfectly made, as a weak spot will develop into a fire crack or a dent, or some other defect which will make the piece useless and a loss when taken before the inspection department.

In Fig. 5, the man to the right is placing a sheet of

clay over a wooden form, a piece of cloth having been interposed between the clay and the wood, so that the clay will not stick to the wood. This clay is then roughly made into shape to fit the mold, which is seen standing against the wall on the bench, and after this rough sheet of clay is placed in the mold, it is then placed on a revolving spindle which is being operated by the man to the left in Fig. 5, and a blade (the right shape to press the clay into

Fig. 8.

the mold), is swung down into the revolving mold, thus compressing the clay into the mold and working it thoroughly. This illustrates the means by which the front and walls of the Eljer round tank are made, and shows why the fixture must be uniform. There is an iron case placed on this revolving spindle which holds the mold in absolutely central position, and as the handle and blade are solidly pivoted to a heavy bearing, built especially for the purpose, a uniform thickness is secured, much more perfect than could be obtained by trusting to the eye of a hand-workman. This round tank is removed from the mold in approximately twenty-four hours, and a clay disc inserted in the back and properly joined by hand work, the workman reaching his arm through the cover-opening in tank to support the disc while it is fairly soft. This joining must of course be done before the clay is hard, or the joint will not be a perfect one. It takes a long experience for an ap-

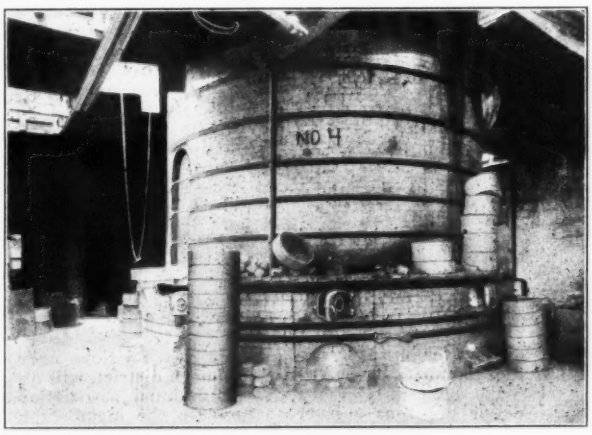


Fig. 9.

prentice to learn to handle these clay parts so that it can be done without straining or weakening them because of their soft condition. If such a strain is caused by carelessness or inability of the workman, a fire crack or defective piece is almost certain to be drawn from the kiln.

In the farther bench shown in Fig. 6, a man is shown joining a back on an Eljer pedestal lavatory. A piece as large as this is very difficult to handle while in the state of plasticity that is essential to make a proper joint. It is very necessary that the designing and modeling of the fixture be done with this feature in mind, so that there is sufficient strength of clay to support the weak parts while in this soft condition.

After the ware is joined together, it is then necessary to allow it to remain on the racks for about a week or 10 days, properly to dry the clay. Steam heat is used

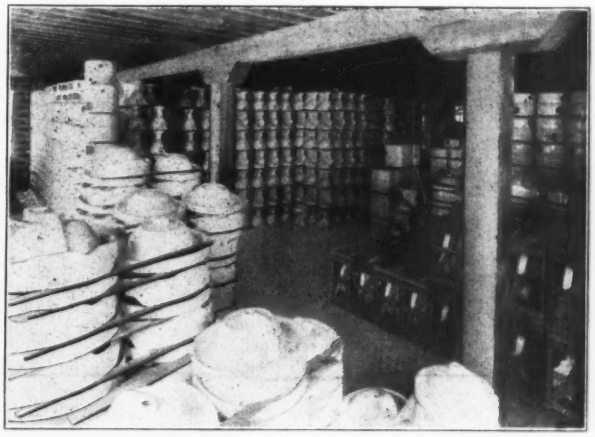


Fig. 10.

to accomplish this result. The ware is then ready for the biscuit-kilns. Large clay boxes made of a very strong, fire-resisting clay are used to stack the ware in the kiln. These clay boxes are called saggers, and inasmuch as they have to support an entire bung, or pile of ware, such as is shown in Fig. 7, it is necessary that they have great strength—in fact sometimes they must hold up as much as a ton of ware while the kiln is at a heat which would melt wrought-iron to a puddle. For this reason, only the best and strongest sagger clay can be used for the manufacture of these saggers. These are piled, by means of step-ladders, with the ware inside of the saggers, in most cases two, and sometimes three, saggers containing a single piece of ware. After this ware is piled in the kiln, (kilns holding anywhere from 450 to 650 pieces of ware, according to the kind of ware and the size of kilns), a door to the kiln is built out of fire-brick, and

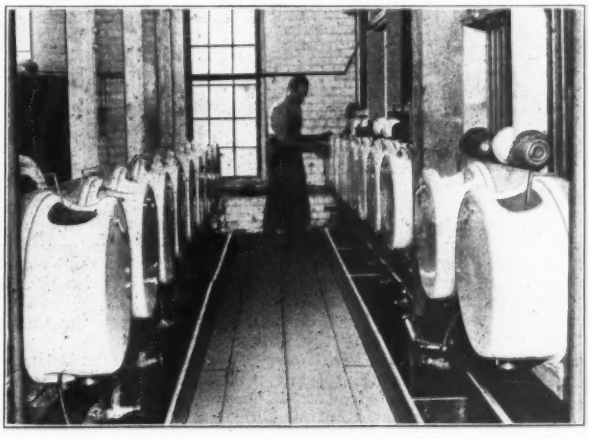


Fig. 11.

the heavy iron kiln-bands around the outside are bolted together to hold the walls against the terrific expansion and contraction of the kiln while it is under the excessive heat necessary to bake the ware. The method of fastening the door of these kilns is shown in Fig. 9. After the ware is fired the first time to a heat which is so high that it reduces the piece one-eighth its size, that is, a shrinkage of 1½-in. to each foot, it is removed. It takes about a

week to place this ware in the kilns, fire it, and remove it from the kilns. It is then solid and strong, and will ring clear as a bell, but is not covered with a glaze. Having the strength, it can now be dipped as shown in Fig. 8, into a glaze containing finely-ground materials, which when melted in the second firing will produce the glassy surface on the ware. This glaze must be so in harmony with the body of the ware that part of it will penetrate the ware, thus eliminating

Fig. 12.

any line between body and glaze so that the two are gradually blended into each other. In this way the flaking of the glaze is impossible with properly-mixed glaze. The ware is then fired in the glost-kilns, glost kiln No. 4 being shown in Fig. 9. It is piled in the same manner as is shown in the biscuit-kiln in Fig. 7, and the door is made fast by heavy bolts, as shown in Fig. 9. When the ware is fired to the proper heat in the glost-kiln, it is then ready for the testing and fitting department, where the necessary brass fittings are installed, and each piece is connected to water-pipes and left under pressure for some time, and is tested in exactly the same manner in which it will be required to work when installed in a building. This is shown in Fig. 11.

The Eljer Co. takes extreme precaution and pride in its system of inspecting ware, tremendous strides having been made in this direction in the last year.

Three large glost stock-rooms are used, part of one being shown in Fig. 10. A quantity of material fitted up, tested, and crated ready for shipment is kept in stock, but of course where special fittings or fixtures a little out of the ordinary are wanted, they must be made up as orders are received. The view in Fig. 12 shows a few of the items that have been made for special orders. There will be seen basins, urinals, several types of heavy wall prison closets and prison lavatories, with and without concealed outlets; raised-front siphon-jets; drinking-fountains; siphon-jet slop-sinks; swell-front, serpentine-front, flat-front, and concave-front square china tanks, and large recess lavatories.

This company was the first concern actively to show its belief in vitreous-china tanks, and began their sale when the trade was generally prejudiced against them. This pioneer work meant much experimenting, with the constant end in mind of improving the product, the most important result being the Eljer round tank.

About a year and a half ago, the thorough standardization was begun—making but few styles of each fixture, and thoroughly inspecting all parts of the manufacture of these. This has continued until at the present time a fixture that is not absolutely right as far as quality of ware, manner of fitting up, and quality of brass work is concerned, has very little chance of passing the shipping-room.

She Was All Set.

The minister was shaking hands with a new member of his congregation, a girl fresh from Sweden, and said, cordially: "I would like to know your address, so I can call on you."

"Oh," said the girl, innocently, "I haf a man."

TRADE LITERATURE RECEIVED THIS WEEK.

The Pacific Mill & Mine Supply Co., 508-510 Mission St., San Francisco, Cal., will mail to all interested a copy of its special catalog on machinery supplies. It includes a great many lines used by plumbers and steam-fitters, and any of our readers who are within territorial reach of San Francisco will find this catalog a useful addition to their supply-book shelves. In writing to the company, kindly mention "Domestic Engineering."

The Richter Co., 214 Ninth St. East, Cincinnati, O., manufactures high-grade goods for plumbing, gas and steam supplies. The company's business has grown rapidly, and in order to supply the purchasing needs of its many customers the Richter company has just brought out its initial catalog, and, in doing so, it has followed the best catalog-practice and has avoided many mistakes common to ordinary catalogs. The catalog is well protected by a double cover of rich brown linen board, bearing in red and black the company's entitling. The reading-matter is printed on good stock in clear type, and with an index which does not strain the sight so as to make subsequent investigation of the products impossible. The Richter goods are clearly illustrated and all the various descriptions, dimensions and prices are set forth clearly in an understandable way. The "Queen City" patterns are quite attractive. The catalog as a whole will commend itself to our readers, because it is of convenient size, many unnecessary illustrations having been omitted, the object of the company having been to place within immediate reach of the prospective purchaser all the lines most likely to be required in actual practice. Copy of the Richter catalog can be obtained on request to the company. When writing mention "Domestic Engineering."

A PLUMBER'S TINNING STICK.

One of the latest aids to rapid and effective plumbing-practice is a plumber's tinning-stick, manufactured by the L. B. Allen Co., 4519 N. Lincoln St., Chicago. It is designed to do away with the ceaseless conflict that takes place daily with ordinary metals and the attendant messy and annoying operations of filing, cleaning, rubbing, wiping, etc.

By the new process, the plumber melts his pot-piece and heats the object to be tinned in the flame until it gets about as hot as the melted pot-piece. The surface to be tinned is liberally rubbed with the tinning-stick and the article is dipped into the melted tin, and it is tinned.

The Allen tinning-stick will appeal to plumbers, as it dispenses with so many of the minor operative details that have to be attended to when tinning by the ordinary methods. No resin, acid, candles or files are required. The object to be tinned does not have to be carefully cleaned. All kinds of metals can be tinned easily and the tinning job is claimed to show up much better than when accomplished by the ordinary process. The new plumber's tinning-stick saves labor, time and money. A trial will involve but a very small expense, and all of our readers who are looking for special opportunities for saving and making money in 1912, can obtain fullest details and sample of the Allen tinning-stick by application to the company. In writing mention "Domestic Engineering."

PITTSBURGH MASTER PLUMBERS TO OBSERVE 30th ANNIVERSARY.

The Pittsburgh Master Plumbers' Association, composed of plumbers in the Great Pittsburgh district, will observe the 30th anniversary of the national association, using this event as a lever to increase the membership of the local association. Such is the announcement of Secretary E. M. Tate.

Details are yet to be completed. The membership of the Pittsburgh association is growing, and a decided increase in the enrollment has occurred since the annual meeting of the state association at Johnstown last April. The membership of the Pittsburgh association now totals 200 individuals and plumbing firms.

Hitchcock Bros. of Peoria, Ill., have just closed a contract to install a Moline system in the Deaconess Hospital, that city, using Cripps down-draft boilers.

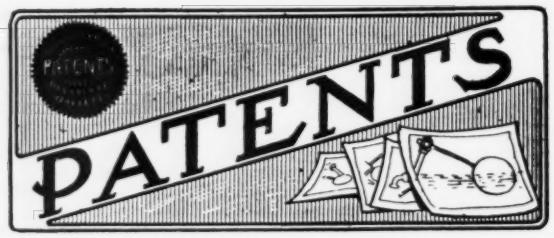
The New Madison Terminal Building

It was inevitable that the magnificent new terminal depot of the Chicago & Northwestern Railway should have its effect of bringing about reconstruction of the surrounding property. Its influence is due not only to its architectural splendor, the magnificence of its internal equipment and its luxurious catering to public comfort, but also because of the advantages of transportation it offers.

Those who are far-sighted in municipal development will appreciate the good business judgment of those who are engaged in the planning and erection of the Madison Terminal building, to be erected on the southeast corner of Madison and Clinton streets. The location of the new Northwestern Terminal on the west side necessitated the vacation of a large number of tenants who had made Canal street the machinery-street of the city. The building is being constructed as an office and display building, to hold the machinery interests in this section of the city.

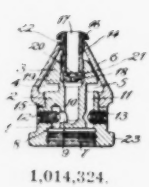
The New Madison Terminal Building, Chicago.

The building is to be an 8-story structure, 80 x 140 ft., opposite the Northwestern depot. It is planned to start constructive operations May 1st and occupation is confidently expected to be completed by November 1st, 1912. It is conceded that it will be one of the most important contracts of the year. Holabird & Roche are the architects and the agents are G. A. Buhl & Co., American Trust Bldg., Chicago.



Plumbing Department.

1,014,324. Sanitary Drinking-Fountain. Philip Mueller and Anton C. Schuermann, Decatur, Ill., assignors to H. Mueller Mfg. Co., Decatur, Ill. A drinking fountain comprising a nozzle, the body of which is formed with passageways for independent streams of water, a deflector spaced a short distance above the top of the body over one of said passageways, a shell provided with an opening in its outer end inclosing said deflector and removably connected at its other end to the body, a narrow annular space separating the shell from the deflector, and a nipple extending inwardly through the opening in the outer end of said shell and threaded into said deflector, and provided with a bore in communication with the other passageway, said nipple being slightly less in diameter than the opening to form an annular outlet for water.



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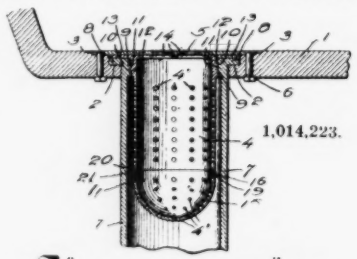

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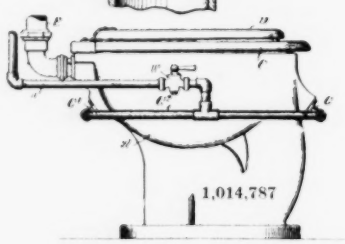

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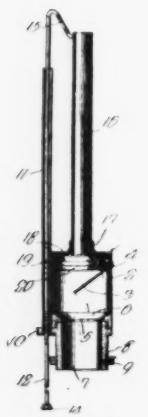
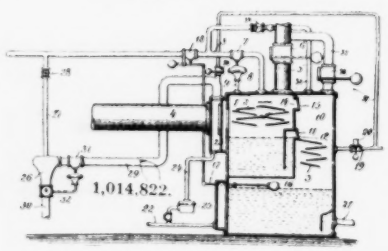


1,014,637.



1,014,822.

1,014,223. Trap for Washstands. Edwin Schall, Hunsicker, Norristown, Pa. The combination with a sink having an opening therein, an annular ledge surrounding said opening, and a waste-pipe suspended on said ledge, of a strainer adapted to be secured within said waste-pipe and comprising an upper perforated tubular section, said section having a horizontal flange adapted to rest on the upper edge of said waste-pipe, a screw-threaded enlargement interiorly of said waste-pipe and near its upper end, a screw-threaded enlargement exteriorly of said tubular section disposed beneath said flange and adapted for engagement with the first-named enlargement, integrally formed cross-bars on the upper end of said tubular section, and a perforated inverted dome-shaped bottom hingedly connected to the lower end of said tubular section.

1,014,637. Flush-Valve. Frank B. Charroin, South Bellingham, Wash., assignor to Bellingham Brass Mfg. Co., Bellingham, Wash. A device for the class described comprising a casing having an inlet and an outlet; a valve slidable in the casing and adapted to close the outlet; a closure for the inlet, hinged to the casing and movable under the impulses of the liquid entering the inlet, to engage the valve, and to hold the valve free from the outlet.

1,014,787. Water-Closet. Bedros R. Torossian, West Hoboken, N. J. A water-closet having a bowl, nozzles formed integrally in the wall of the bowl at the front and rear thereof and pointing upward in an inclined direction toward the center of the top opening of the bowl, nipples secured in the wall of the bowl and connected with the said nozzles, a pipe arranged exteriorly of the bowl at one side thereof and connecting the said nipples with each other and a pipe leading to a water-supply and provided with a valve under the control of the user, the said pipe being connected with the first mentioned pipe.

1,014,822. Water-Heating Apparatus. George H. Gibson, Montclair, N. J., assignor to Harrison Safety Boiler Works, Philadelphia, Pa. The combination of a heater, a pipe for carrying water thereto, means for carrying steam to the heater to heat the water therein, a valve in said water-pipe operating automatically in response to predetermined conditions of steam within the heater, a second heater, a connection through which water may pass from the first heater to the second, means for admitting steam to the second heater automatically under predetermined conditions to heat the water therein and means for automatically precluding the passage of steam admitted to the second heater from that heater to the first heater, substantially as set forth.

IF YOU CAN'T GET A PLUMBER, JUST ASK A POLICEMAN.

Lincoln, Neb.—A Lincoln citizen has hit upon a new way to secure a plumber on a hurry-up call. When L. J. Herzog learned that a water-pipe had burst, he told the police that he could not conveniently go down town to find a plumber, and asked help from them. After an hour's search, in which several workmen were called out of bed without finding any one willing to make the repairs immediately, a plumber who lives near the scene of the accident was finally found, and he consented to do the work, much to the relief of the owner of the building and the policemen on night duty in the vicinity.

Pittsburgh, Pa.—The George H. Soffel Plumbing Co has been awarded the contract for all plumbing work in the new warehouse to be constructed at "The Point," (Penn avenue and Water streets) for the Point Improvement Co. The contract is said to be work over $8,000.

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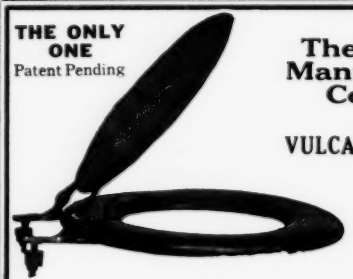

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